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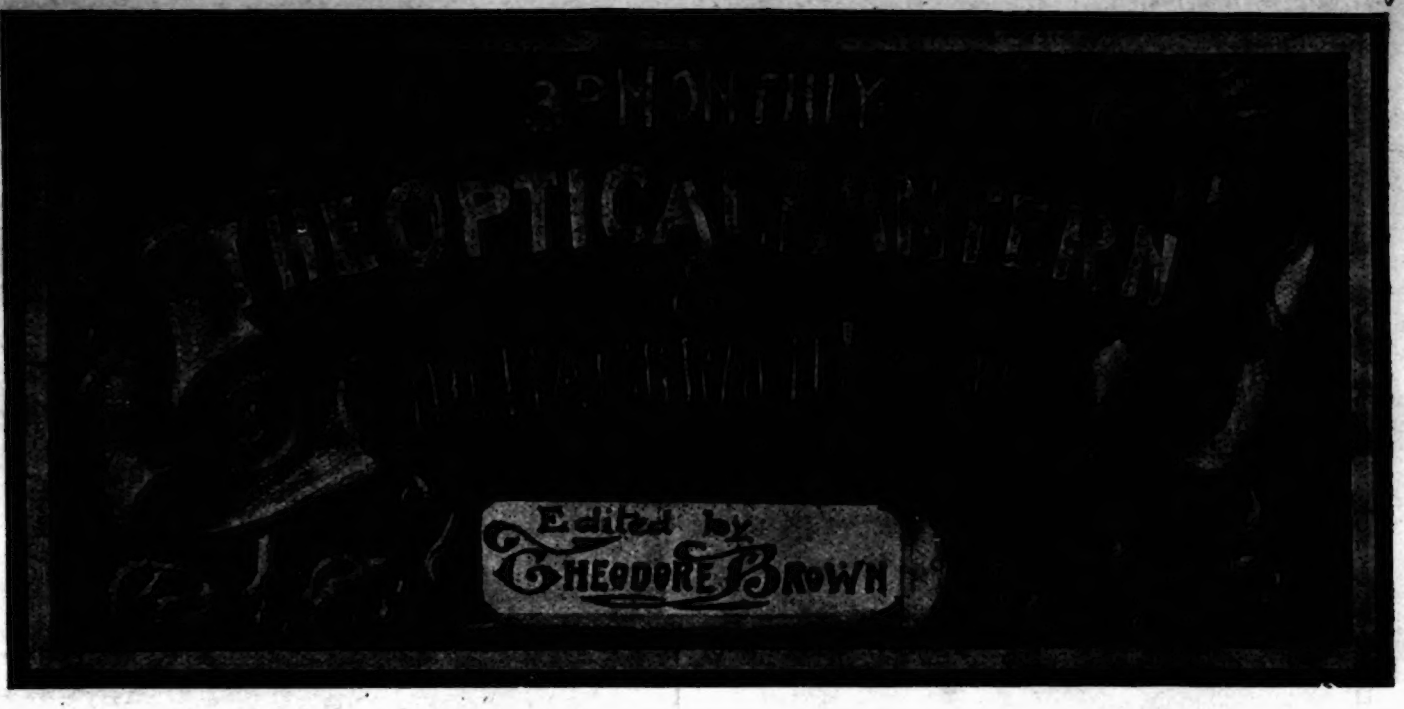

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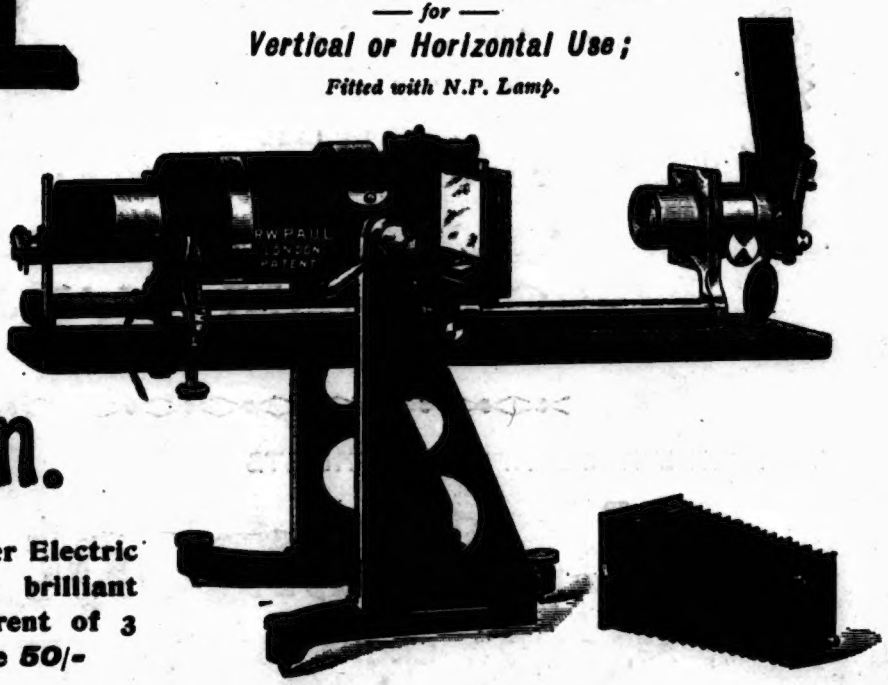

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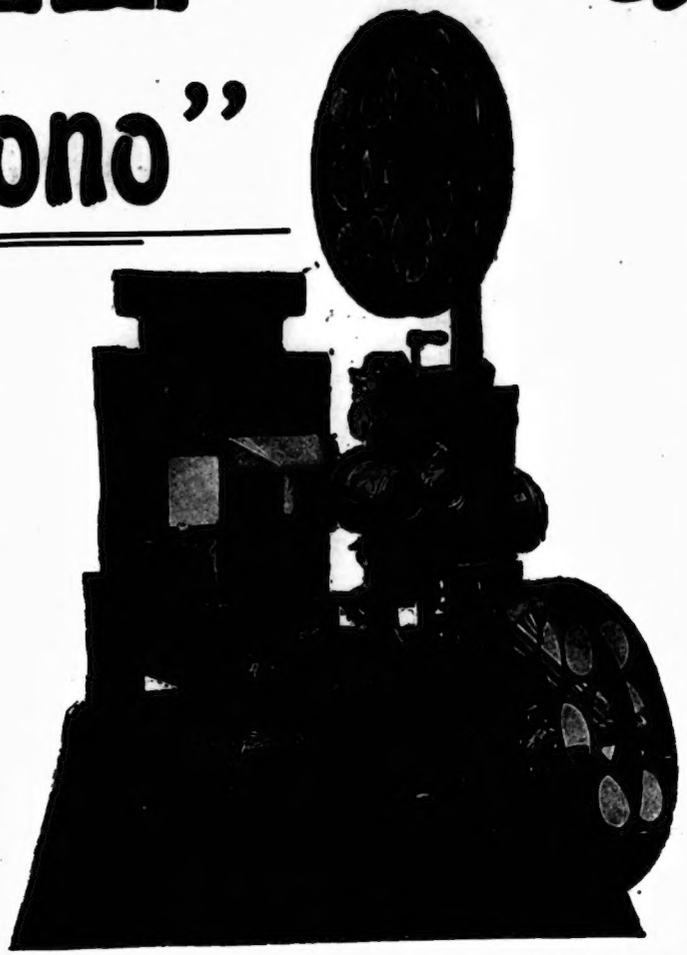

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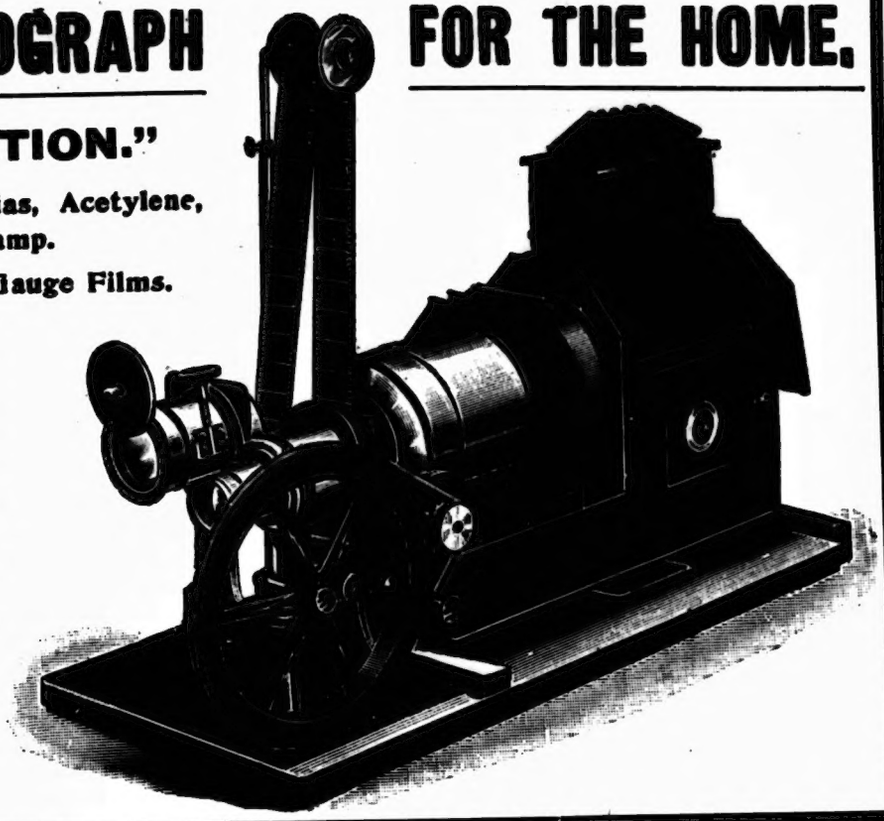

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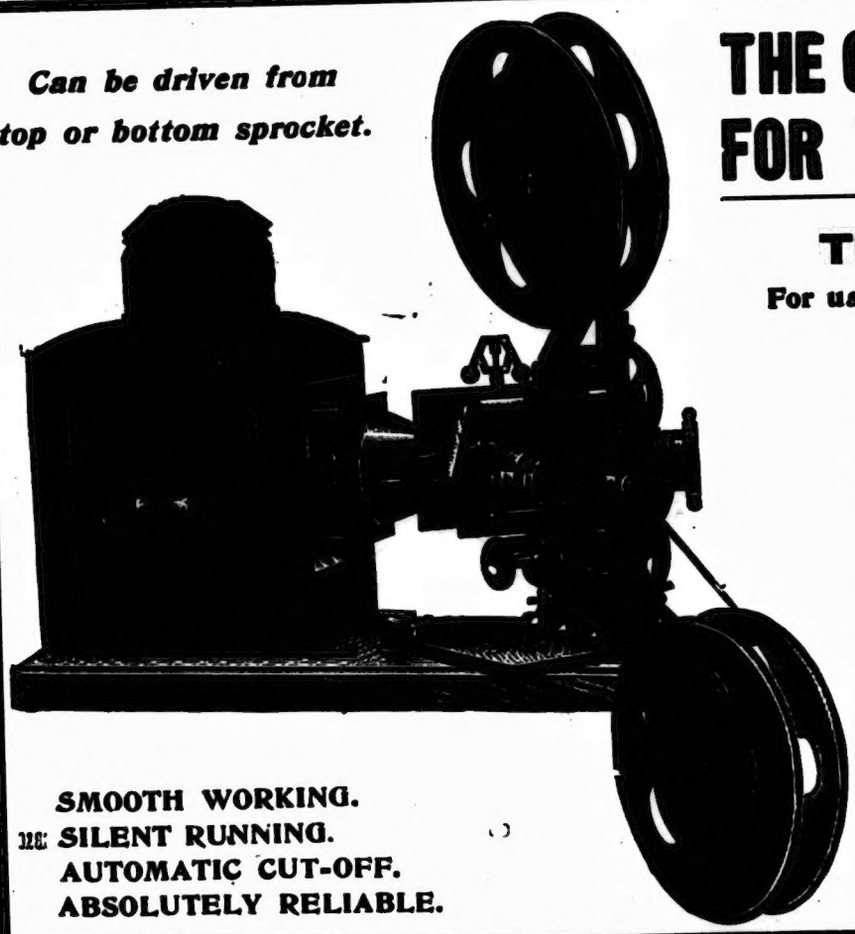

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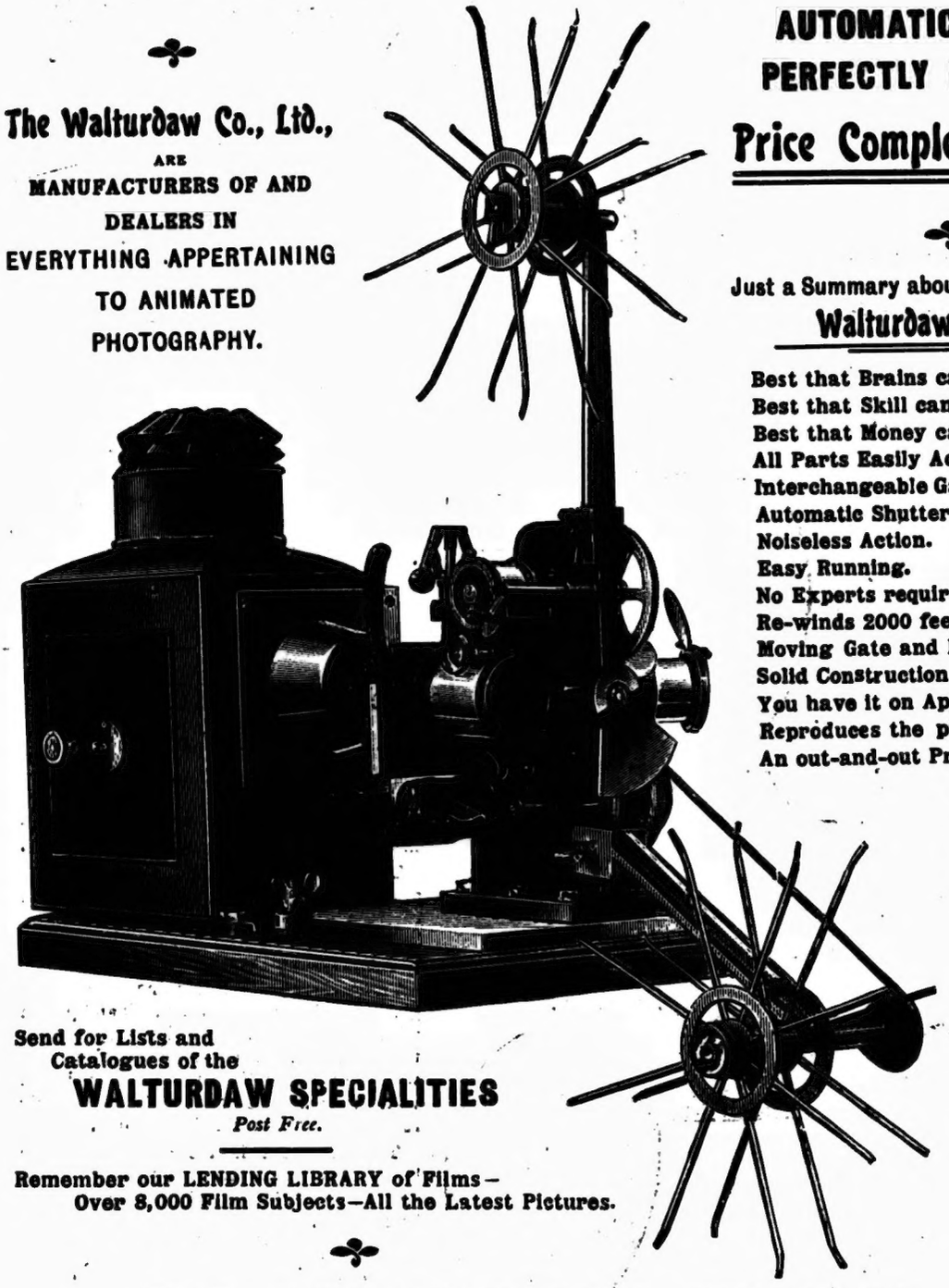

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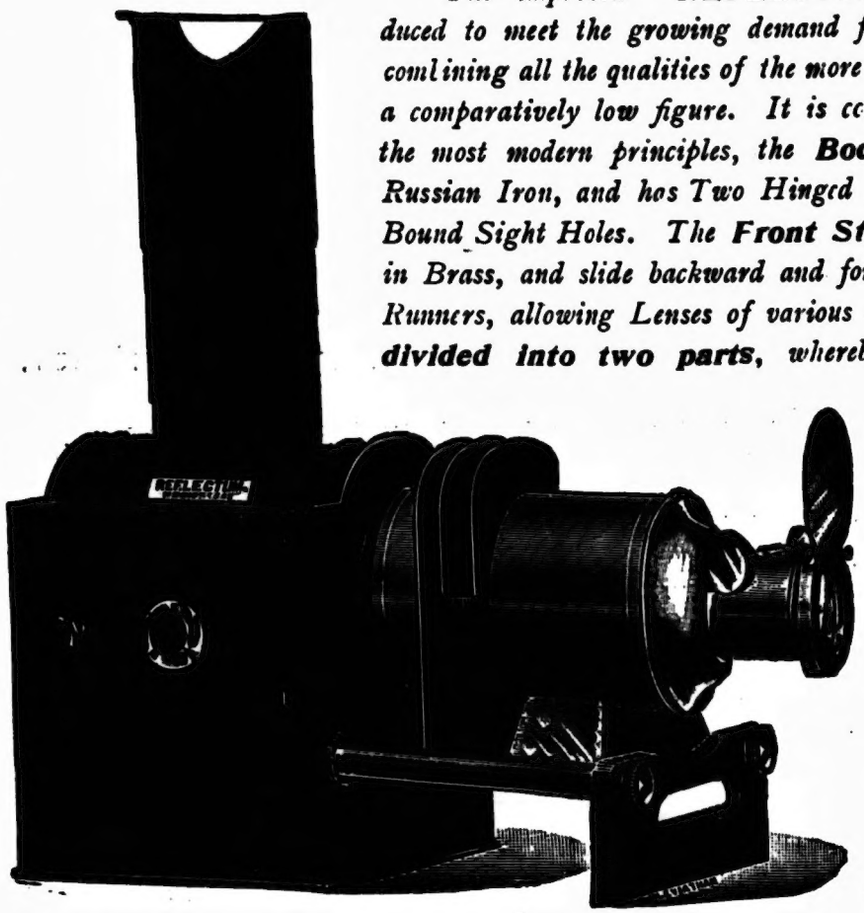

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DURING the past month little has occurred in our trade out of the ordinary run. Business has been good generally, and one has only to notice the numerous forms of entertainment springing up all around to understand why film and slide salesmen have been rubbing their hands with satisfaction. I find the provinces have followed the lead of London, and have opened up matinees where miscellaneous entertainments cater principally for the amusement of ladies and children. Animated pictures figure largely in all of these, and are made the "star turns."

The feature of the month has been the exclusive bioscopic entertainments called "Urbanora," at the Alhambra, where the chief attraction has been Mr. Charles Urban's latest production. When we interviewed this gentleman last November he was just off to take the 70 splendid bioscopic pictures on the fastest mail steamer afloat, the "Kaiser Wilhelm II." That he utilised this voyage with discretion and ability, is manifest by the exceedingly interesting series he is now producing.

Sea pictures have always been the most popular of animated subjects, and evidently the passengers on board entered into the spirit of the business with zest and enjoyment. The ubiquitous Mr. Urban can be seen popping up here and there with a smile, leading the games, and seeing that the operator has no want of characters to aid the scenery. The whole series is full of interesting items, and although huge difficulties had to be encountered, the result is another feather in the cap of the Urban Company. Towards the close a remarkable effect is produced by the sensation of a storm, gradually increasing and finally passing into a beautiful sunset, followed by brilliant moonlight, portrayed on a smooth sea, in quite a novel manner. These effects are received with well deserved applause, and add a relief and charm to the more matter-of-fact pictures. The second part of the Urbanora programme consists of a series of beast, bird and reptile pictures, which, besides being instructive and entertaining, have the merit of considerable humour. The new two decker fireproof projection cabin at the Alhambra is well worth seeing; the film running through the machine at the top is re-wound in the roomy basement, thus keeping films that have been shown entirely separate and free from the operating room, and assisting in a perfect method of management.

Last month I referred to the cinematograph being used in connection with commercial company work, and this has brought to my notice a lecture which was originally read at a meeting of the Clerks of Works' Association, and has since been delivered at various societies, by Mr. Bamber, one of the heads of the Associated Portland Cement Manufacturers, Ltd. The views were taken and reproduced by the British Mutoscope and Biograph Company, and among the films shown were:—Operations in a chalk quarry; train on road from the quarry to the works; view on the line taken from the front of the engine; steam crane and grab digging and loading clay into railway trucks at clay pit; chalk and clay being tipped into wash mills; the general view of wash mills; plant showing the crushing and mixing of chalk and clay; panoramic view of three storage

and mixing tanks, holding 2,500 tons of material; rotary cement kilns in operation; tubes, mills and operations, etc. We admire the pluck of the management in taking such a forward stride by having pictures of their works taken. From personal knowledge we know how this appeals both to those who have the privilege of hearing the lectures, and also to the shareholders of the concern; interesting all who are brought directly into touch with their investments, and who thus see that those in authority are pushing ahead and advertising their company in so excellent and satisfactory manner.

Among other uses to which I find the optical lantern put during the month were: Sanitation (Dr. H. O'Neill, B.L., and his lecture on the health of Belfast and the question of milk supply); also Mr. Ben Morgan's organised lantern lectures throughout the British colonies and foreign markets, on the progress of British industries, which, by-the-bye, are to be given practically all over the globe. It was also used to entertain the Gateshead retired engine drivers and the inmates of Aberdeen West Poorhouse; to aid in enlistment at Dundalk; for agricultural developments by Mr. W. Goaring, in his interesting and instructive address on potato culture; besides assisting many forms of religious and charitable work.

I have mentioned a few of the many uses to which the lantern and cinematograph have been put during the past month, and I would now draw the attention of exhibitors to an important matter which has hitherto received but scant attention. I refer especially to the question of a spectator's position in the hall. This month, in the *Lynn Advertiser*, a report of a Lantern Lecture at Hillington Hall stated that "shortly before the lecture commenced the three elder children of the Prince and Princess of Wales, Princes Edward and Albert, and Princess Mary, arrived in company with Mr. Hansell, the Princes' tutor. The Royal children were conducted to a front seat, where they had an excellent view of the pictures shown on the sheet." Now, it cannot be expected that a newspaper reporter should know where the best position for viewing lantern projections is located; but it is evident to anyone possessing an elementary knowledge of optics that the Royal children were in the very worst position possible.

Exhibitors should recognise the fact that the human eye is capable of taking in only a certain superficial area from a given distance; and, if placed too close to a picture, the angle subtending from the margins of the projection to the eye is abnormally wide, and cannot be embraced by the latter without movement of the eyeball. This applies to ordinary lantern slide projection; and when living pictures are involved, the irritation becomes doubly objectionable on account of the movements. It has been suggested that the best position to view a lantern projection is in the immediate vicinity of the lantern. This is perfectly correct when the focus of the objective used upon the lantern is such as to project the image with an angle corresponding to the normal angle of the eye; but in the limitations of a lecture room a so-called wide angle lens is generally used, and in this case the spectator would require to be placed some distance behind the lantern in order to obtain the best results.

It is far better to view a picture from a distance than very near. In the former case it is always possible to centre the attention upon the projection and disregard any of its surroundings, such as the sides of the stage, or surface of a wall surrounding the screen; but in the latter case it is a physical impossibility to view the picture satisfactorily. It will naturally be remarked, that to comply with these conditions the size of an audience is necessarily limited, and there is an element of truth in the argument; but if exhibitors would content themselves with a smaller picture than is generally in vogue, the sacrifice of dimensions would be amply repaid by the naturalistic effects produced in the minds of the spectators. It may not always be convenient to alter the optical combination of the lantern, but the exhibitor can at least see that his special visitors are provided with the vantage point from which to enjoy the exhibition under the most favourable conditions.

BRITISH MUSEUM

Optical Illusions.

No. II.

By EDMUND H. WILKIE, *Of the late Royal Polytechnic Institution.*

I might easily multiply instances in which, by a slight alteration in the position of the glass, various curious effects may be produced, but wish now to direct your attention to an ingenious adaptation of Professor Pepper's principle lately exhibited in France.

In the Hall of Exhibition some curtains were closely drawn, and a railing ran from side to side to prevent visitors approaching too closely. After a little music to settle down the audience, the curtains parted, and a beautifully painted sea-view with a setting sun was disclosed.

The scene had a slightly hazy appearance owing to a piece of gauze being stretched over the entire opening, and the sides of the circular picture gradually faded into nothing on account of several circular frames of gauze being placed overlapping each other like the capes on the old-fashioned coachman's cape. After a short explanation, a figure representing a Sea Nymph rose from out of the waters and floated about, turning head over heels in a most remarkable manner, finally vanishing downwards once more. The method of production will, I think, be sufficiently apparent on reference to the sectional view (Fig. V.)

There we see the inclined plate of glass and the recumbent figure as in Fig. III., but in this latter case the figure was placed on a turntable to give the effect of somersaults, and the turntable itself ran on wheels to cause the figure to rise and fall by being pushed backwards and forwards.

At the close of one of the Christmas entertainments at the Royal Polytechnic Institution, a very remarkable adaptation of the ghost was exhibited under the title of "Asmodeus, or the Bottle Imp." The arrangement for reflection was the same as in the case of the statue mentioned the Dec. number, but the figure instead of being directly reflected, was first received on a convex mirror, and thus reduced to about fifteen inches in height. This image formed by the mirror was reflected on to a spot occupied by

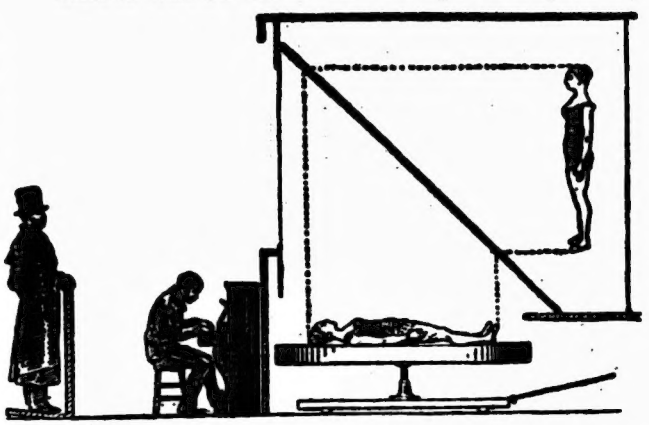

Fig. V.

a large champagne bottle standing on a table (one of those large "dummy" bottles, about thirty inches high, used by wine merchants to decorate their windows), and the effect as the diminutive figure jumped up and down, apparently inside the bottle, caused much amusement.

In spiritual seances one of the most ordinary manifestations is the levitation of solid or material objects. How this is accomplished I will not pretend to explain, but the same effect can easily be obtained on the stage by very simple means, as I shall endeavour to show.

For the object we will choose a chair. The stage is prepared by having a long narrow piece cut out just sufficiently large to allow a plate of transparent glass to travel up and down on edge through it, the plate being the

width of the seat of the chair it is proposed to float.

As the glass in this case is not required for reflection it may be placed at any angle with regard to the audience, the best possible position being with its face to the footlights. Considering the latter, it would be better if they were dispensed with altogether in this case, and all the illumination allowed to come from the top and sides, in order to guard against the possibility of detection by the reflection of luminous objects by the glass plate, which would at once reveal its presence.

Below the stage there are vertical grooves in which the plate slides, and an arrangement of cords and pulleys to cause it to rise and fall at will. It should work with a slow and perfectly even motion, as any jolting would put the spectators on the track at once. The following diagram (Fig. VI.) will render the description clear:—

(A) is the chair resting upon the glass plate (B), which slides up and down through the cut in the stage (C), by the aid of the weight (D), being kept rigidly in place by the vertical grooves (EE).

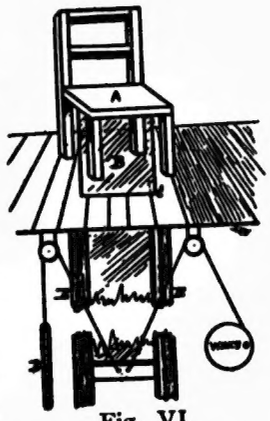

Fig. VI.

If properly balanced on the edge of a stout plate, very heavy objects can be moved in this manner, and the writer has seen a couch, with a lady reclining upon it elevated to a distance of about five feet above the stage, by means of a large plate extending right across a small stage and running in grooves placed behind each side-wing, the lower portion of the apparatus being the same as in the case of the chair.

Up to the present, the effects I have described have been the result of sliding plates of plain glass. Now let us, for the sake of variety, turn our attention for a time to illusions, depending for their success upon plates of reflecting silvered glass.

In 1879 Professor Pepper, in conjunction with Mr. Walker, produced at the old Polytechnic, and afterwards in other places, including the chief cities in Australia, an optical effect, which they entitled "Metempsychosis." It was considered to be one of the most perfect illusions ever brought before the public, and when introduced in dramatic sketches caused much surprise and amusement. By means of this apparatus, a variety of changes, such as a living man appearing in a previously empty arm chair, a basket of oranges changing into pots of marmalade, &c., &c., were accomplished, the latter feat being exceedingly popular, possibly on account of the practice of distributing the pots amongst the audience.

One puzzling change was that of a woman to a man. I do not know if the lady was the "New Woman" we have heard so much about lately, but in this year of 1905, in costume at least, we should not require any very complicated apparatus to effect the transformation.

The first dramatic sketch in which this truly marvellous apparatus was used was entitled "The Artist's Dream," and on the rise of the curtain, the stage appeared set out as an artist's studio, the walls being hung with the usual properties one would expect to find in such a place. On the O.P. side of the scene (Fig. VII.), near the front, stood a large easel, supporting a partly-finished outline of a head; further up the stage, on the same side, an antique carved wood table, of the well-known Wardour Street design, was standing, upon which rested a large shaded lamp, which was supposed to illuminate the room. On the other side, the space was occupied by chairs, &c.

In the centre of the back appeared a small chamber, with a large arm chair at the back. The floor of this apartment was raised about three feet above the level of the stage, and was approached by a short flight of stairs (Fig. VII). Originally, a light was placed under this chamber, to show to the audience that nothing in the nature of a trap door was used, although, in witnessing illusions, we must never allow our vigilance to be relaxed for a moment by any appearance of candour on the part of the arch-deceiver in charge. However, in this case it was perfectly honest, as no traps were necessary.

The scene reproduced is photographed from a drawing of the stage as set out to introduce the illusion in the late Mr. George Buckland's entertainment, entitled "Curried Prawns."

In the case of the "Artist's Dream," immediately on the rise of the curtain, the usual stage business took place: a servant coming in to dust and arrange the room, being shortly followed by the artist himself. Presently a knock on the door preluded the entrance of two porters, each carrying a bundle of something, done up in a cloth, and which, on being opened, exposed to view the two halves of a lay figure, made of papier maché.

The lower half being seated in a chair, was joined to the upper by means of a large wooden peg. Now to disabuse the minds of the beholders of any idea of little boys being concealed inside, a large trap door was made in that portion of the figure's anatomy usually occupied in the human subject by the organs of digestion, and this was now opened to show that the figure was really hollow.

A dialogue now occurred between the artist

Fig. VII.

and the porters as to the best place to put the figure for the present, and the difficulty was finally solved by seating it in the arm chair in the little chamber at the back, where it remained in full view of everyone in the auditorium. The men then retired, the stage was slightly darkened, and the artist settled himself comfortably in a chair by the lamp, and proceeded to seek inspiration by reading the newspaper.

I do not know what he read, perhaps a political leader, but he soon felt its soothing influence, and, after nodding a few times, sank into a profound slumber.

Then something peculiar occurred—something that arrested the breath of those inclined to nervousness.

A long tremolo sound of a weird nature was heard; a light from some point, not easily determinable, fell on the lay figure, as with a jerky mechanical motion its head moved from side to side, as if looking round the room. It then slowly arose to its feet, and walking forward, came down the steps on to the centre of the stage, where it paused for a moment.

This picture was very impressive, the faint light in the little room at the back, the semi-dark stage, with the artist asleep under the warm rays of the large shaded lamp, and the lay figure standing in the centre, all its joints apparent, and bathed in a mysterious steely blue light, together with the weird musical accompaniment, formed a tableau which haunted the memory for long afterwards. The figure then turned towards the easel containing the half-finished outline, selected a piece of crayon, and proceeded to finish the drawing, after which it slowly retreated backwards up the stage, mounted the steps, and sat down in its original position in the arm chair.

After a moment's pause the artist started up with a terrific yell, the lights were raised, and in rushed the two porters and the servant. The artist bounded up the steps into the rear apartment, and grasping the lay figure, dragged it down to the front of the stage near the footlights, where they all seized it by the arms and legs, pulling it to pieces, after which, down came the curtain.

Now having described the general appearance of this illusion from the auditorium, let us consider the means by which all these mysteries were accomplished; but stay! methinks I see our genial editor's scissors looming in the distance, so for the present must content myself by observing:—

(*To be Continued.*)

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Stereoscopic Notes.

The Stereofactor.

If two prints from one negative are mounted side by side and examined in the stereoscope, there will be no effect of relief produced, but a writer in the *British Journal of Photography* suggests a special method of viewing such prints so as to obtain an illusion of relief similar to stereoscopic effects. After mounting the pair of non-stereoscopic prints side by side on one card, the mount is cut half through and bent at the junction of the two prints, forward, to an angle of about 140 degrees. A holder, to slip on the stereoscopic projection, is provided; the function of which is to retain the bent card in the position indicated. Thus, the two ends of the mount will be closer to the eyes than will be the centre part; it follows, therefore, that portions of the picture lying towards the left-hand side of the left print will be closer to the left eye; that corresponding parts in the other and right-hand print will be to the right eye. In other words, inequality of magnitude of corresponding parts in the pair of prints will be created by their different distances from the observer's eyes. It is claimed by Mr. A. Lockett, the author, that a pair of similar prints examined in these contrary positions will give rise in the mind to a sensation of relief, similar, but not identical with stereoscopic. We have tested the theory with great care, and find a considerable amount of truth in the author's remarks, though the effects are not entirely without suggestions of distortion, due to the fact that uniform focus cannot be retained.

Direct Stereoscopic Projections in Natural Colours by means of the Stereo-Aphengescope.

This apparatus is similar to the ordinary aphengescope, but with the addition of mechanism for swinging the subject on vertical pivots during its projection. In the usual position for the subject, a rocking stage is provided, to which the subject is attached, and the rocking motion is affected by means of a pendulum, motor, or clockwork. Subjects not exceeding ¼-inch in thickness are best suited for this apparatus; such for instance, as a plaster cast, coins, flowers, and small specimens of natural history. The natural colouring of the subject is reflected through the objective lens by which it is thrown upon a lantern screen; whilst the tilting of the subject presents its various phases to the observer, the total effect being stereoscopic relief. The speed at which the rocking movement is affected, together with the extent of its movement, are conditions that need to be ascertained by experiment; but it may be said that the approximate time for a complete oscillation is two seconds, and the displacement a quarter of an inch.

Projecting Microscopic Objects Stereoscopically.

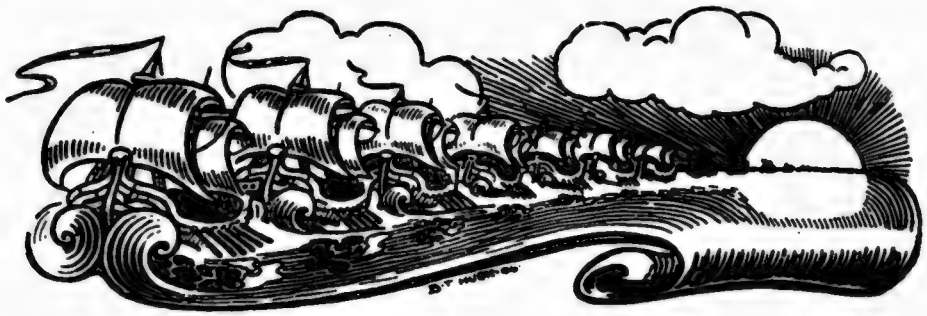
Objects for microscopic projection whose thickness it is desirable to investigate, as well as their superficial nature, may be treated in a similar manner as described in the last paragraph; but in this case the vertical rocking will have to be reduced considerably; and the process also differs in so much that the image is projected by transmitted light instead of reflected light.

The Parallax Stereogram of Mr. Ives

Consists of (1) a photographic transparency, which is a line composite of the dissimilar images of an ordinary stereoscopic photograph, and (2) an opaque line cover screen, mounted over the photograph, suitably prepared. The photographs are made through an opaque line screen, having one hundred lines to the inch, the opaque lines being broader than the clear spaces, and a similar screen is used for the cover. The photograph itself has two hundred lines to the inch, alternate lines belonging respectively to the right or left eye. It will be seen that if the cover screen is placed in contact with the photograph, it can be so adjusted as to completely hide all the lines belonging to one eye, and a single image, like one half of an ordinary stereoscopic print, will be seen; and that if the screen is separated from the photograph, either set of lines may be seen at will by looking through the clear spaces between the opaque lines obliquely, or at a different angle to the perpendicular. In order to see the composite photograph as a solid image in relief, the screen is so disposed that, from one point of view, owing to parallax of vision, the lines of picture forming the image for the right eye or seen only by that eye, and the lines forming the left eye image or seen only by the left eye. Under these conditions the otherwise flat photograph appears to vanish and be replaced by a solid object, which may appear to be situated at some distance on the other side of the frame, or suspended in the space between the frame and the observer's eyes.

Stereoscopic and Non-Stereoscopic Binocular Vision.

According to a writer in the *Optician*, binocular vision may or may not be stereoscopic; when stereoscopic, both eyes have perfect or nearly perfect vision equally, and while there may be a dominating eye, that is, either the right or the left eye is favoured for aiming at a target owing to muscular inbalance, still, vision with both eyes is between thirty to fifty per cent. better than single vision with either eye alone. In binocular vision, which is not stereoscopic, it will be found that the visual field of both eyes is not equal to the sum of the fields of both eyes in the horizontal meridian, and there is a difference, not necessarily great, in visual acuity, and there is usually a decided tendency in aiming to use the favoured or best seeing eye. Vision with both eyes is only very slightly, or not any better than with the best seeing eye singly. When looking through the stereoscope both pictures will unite into an enlarged one, the same as if stereoscopic vision were present; but such a picture will not show the relief and lifelike stereoscopic effects present in true stereoscopic vision, which gives the illusion of thickness and perspective.



THE SCIENCE OF ANIMATOGRAPHY.*

(By the Editor.)

Chapter II. (*Continued from Page* 63.)

By far the most important member of a cinematograph camera is the lens. When it is remembered that from 15 to 25 pictures have to be taken within the very short space of time of one second, it is evident that the optical system adopted demands special consideration. The lens should be of the best type obtainable, both as regards rapidity and brilliancy of definition. It must be rapid in its action to permit of the very short exposure necessary to catch, without blur, the swiftest moving object in the view embraced; and also that sufficient phases of that object may be caught up during its transit across the field of view. Failing this, Animatography reverts back to the old wheel-of-life effects; so imperfect on account of the meagre number of phases embraced.

It is important that the lens should be capable of rendering brilliant definition, in view of the enormous enlargement the little pictures have to be subjected to in order to obtain a sufficiently large projection therefrom upon the lantern screen. In this respect it may be mentioned that it is the stationary objects in the composition that demand perfect definition. If all the objects were moving, then the question of clearness would not be one of so great importance, as the human eye is a forgiving spectator. But fixed objects, such as houses, etc., require to be clearly defined, on account of the recurrent projection and absolute superimposition of these parts of the picture, which, not being sharp, become a source of annoyance to the critical eye.

It has been the custom to supply a lens of the Petzval form for use in Animatography, but we have found an Orthostigmat (anastigmat) much better for the work. With a lens of the latter type, good illumination is obtainable, but not only so, the field is flat, and the marginal definition good. The more perfect the optical system employed, the larger may the aperture of the shutter extend, so long as the film is always under cover whilst in motion, and still whilst exposed to the light.

The best form of shutter is a rotary, working in almost contact with the walls of the cell in which it revolves, thus securing absolute exclusion of light that may otherwise reach the film. This is an important point, insomuch that the little pictures succeed each other without intermittent space upon the celluloid, permitting of no waste spaces. In

*Note.—The word "Animatograph" has been proved to be accepted and understood in the trade as a machine of Mr. Paul's manufacture. It should be understood that the use of the word is in a generic sense, as the title of these chapters, does not render Mr. Paul's claim to the term void.

the projecting lantern, the shutter is sometimes composed of a semi-transparent, tinted, or perforated medium, allowing a little light to be transmitted to the screen whilst it passes in front of the objective; the object of which is to eliminate the otherwise total darkness of the intervals between succeeding projections. Such a shutter, however, is not permissable in the taking apparatus; an opaque shutter being indispensable.

The use of a cinematograph camera involves similar lighting conditions as those necessary in the successful production of ordinary photographs; but the maker of ordinary pictures scores an advantage over the animatographist, in being able in many instances, to prolong exposure almost indefinitely. He may choose the morning or the evening, when picturesqueness prevails, in lengthening shadows and atmospheric phenomena. Not so with the animatographist; at noon-day, when the sun is in the meridian, this is the time it is most often necessary for him to make his exposures. Again, the demand for topical subjects will often limit him in his choice of arrangement, and deny to him full liberty of composition. Excepting in the case of stage scenes and make-ups, the operator of the cinematograph camera is not always in a position to know the exact nature of coming events; he has no control over the varying composition of a crowd; they may perchance unconsciously group themselves in a most desirable manner, but the chances are they will not. But whilst all this is true, the operator has at least a choice of view point from which he may take his topical subject; and in this respect let him select a position that will give a proper illumination of the subject. He should avoid facing, or nearly facing, the source of light; he should aim at having the sunlight proceeding over one of his shoulders, and falling obliquely to the axis of the camera lens. Photographing against the light means haziness and loss of detail. Photographing with the light, striking the subject in a line with the axis of the lens, means flatness; but photographing with the light proceeding to the subject from an oblique angle, will render a subject with all the apparent solidity and relief possible in any single picture.

(To be Continued.)

NON-INFLAMMABLE CELLULOID.

In view of our recent remarks in reference to celluloid for films, the following particulars of a non-inflammable material should be of interest. Photo-Mechanical Process Patent, No. 9,277, 1904 (George E. Woodward, 94, Shaftesbury Avenue, London, W.).—The process consists in mixing the celluloid with liquified fish glue, with an addition of gum arabic, gelatine, and rape oil. To one kilogramme of celluloid are added one and a-half litres of liquid fish glue, four hundred grammes of white gum arabic, one hundred grammes of white gelatine, and forty grammes of rape oil. The substance to be added to the celluloid must be of a liquid syrupy consistency. The process is carried out in the following manner: The liquid fish glue with the gum arabic is put into a receptacle of glass, china, or the like, and left to soak for twenty-four hours in a very dry place open to the air, therefor uncovered. Then the receptacle with its contents is placed on a water bath and stirred, for instance, with a stirrer of china or the like, until the gum has become perfectly liquid. The temperature of the mixture must not exceed 25 deg. C. Then the gelatine is added and stirred until it is quite dissolved, so that there is no more solid residue. The mixture is then lifted off the water bath, and rape oil is added to it while stirring continuously, when, after being thoroughly mixed, it is left standing about twenty-four hours to cool. Before it is quite cold it is put through a sieve, in order to remove any solid pieces. After the soaking, dissolving, and cleansing by means of the sieve, it is left standing in the same place open to the air. Any scum formed during the cooling is always removed. For the treatment of the celluloid a perfectly clear colourless syrup should be used. The celluloid to be treated must be in a glass or china receptacle or the like, in a syrupy state. The mass containing fish glue is poured in by drops while carefully stirring, preferably in the middle of the celluloid, and gradually increasing the stirring surface. After a thorough mixing the celluloid is ready for use, and on coming into contact with flame does not ignite. The solution of fish glue used during the process can be obtained by letting two hundred grammes of fish glue soak in a litre of cold distilled water. It is then passed through a sieve, and any parts kept back are crushed, so that they are completely mixed with the water; ten grammes of kitchen salt are added to clear the mixture, and then it is again filtered.

NOTES FOR THE NON-PHOTOGRAPHIC LANTERNIST.

By J. A. W.

THE photographer of the present day is very often a slide maker and lanternist too, but during twenty-five years' experience I have found many who may know how to make slides, but have not a knowledge of photography. I have many friends who ride one or both of these hobbies, and it is surprising how varying are the degrees of excellence in their respective productions for the lantern—I had nearly said "Magic Lantern." What memories of the good old days those words conjure! As a lad of eleven I used to assist a male relative in making oxygen, and on "show" nights was used as make-weight by sitting on the gas bag.

A friend recently told me that making lantern slides was as easy as "shelling peas." He had borrowed a negative, made an exposure, and had been fortunate enough to get a good result, but for a long time afterwards his attempts were futile. Although the making of good positives is not as easy as many imagine, yet even the tyro in matters photographic may become an adept, if he has the ability to learn through failures. The following notes are primarily intended for lanternists who are not slide makers, but it is hoped they may also be of general interest.

We must first decide which of the two methods we shall employ to make a positive, that is, by "contact," or by copying with a camera. The latter process enables us to obtain the most diversified results, as we are able to reduce, enlarge, or select portions of a negative, according to our individual ideas. Contact printing is, however, the more simple method, and will, no doubt, be chosen for a commencement. It is fashionable to lament the days of the Collodion Plate, and although I must admit that great beauty of gradation, clearness, and richness of tone can be obtained by its use, yet when we consider the all-round excellence and adaptability of the present day Gelatino-Bromide Plate, we need not hesitate to choose the latter. A lantern slide should have fineness of grain because of the great degree of enlargement it undergoes, therefore a slow plate, which generally has this characteristic, is best. I might here give the stereotyped but most useful advice, choose a plate by a good maker, and use "no other." If this is done, the difficulties which appear from time to time will usually be of the same character, and facility of working will come with practice.

Having provided ourselves with the requisite negatives, begged or borrowed, we procure a printing frame, which should, if possible, be specially adapted for slide making. A good selection will be found at any dealers, failing this, an ordinary printing frame of a large size can be utilised. The main points to bear in mind are;—Avoid scratching the negative with the edges of the lantern plate; see that both films are in contact; place the sides of the lantern plate exactly parallel with the horizontal lines of the negative; do not expose to the light until the length of exposure is decided upon; be sure that the frames, plates, etc., are freed from dust—(a broad camel-hair brush is good for this purpose). It is impossible to give reliable figures for exposure, owing to the infinite variations required, because of the difference in density, gradation, colour, etc., found in ordinary negatives.

It must be thoroughly understood that the results of development, carefully noted, are the best guides to exposure—experience, with its attendant failures, is the best teacher. The conditions of light, and means for measuring distances should never vary, and it is a good plan to mark off a board in inches, with a light fixed at one end (which may be either a gas burner or duplex oil lamp), so that the printing frame can be placed anywhere along its length facing the light. When once the correct exposure and distance from the light is ascertained, a note should be affixed to the negative for future guidance. Identical results should always be obtained under similar conditions.

Over-exposure can, by manipulating the developer, be made to show a good result, but under-exposed plates are best put on one side, to be afterwards converted into cover glasses. Over-exposure is indicated when the shadows appear flat and veiled, or not sufficiently dense when the high lights are strong enough. The

picture comes up too quickly whilst in the developer. Under-exposure may be diagnosed when the shadows are blocked up whilst the high lights appear to be correctly developed. The image takes a long time to appear. Remedy—longer exposure. The slide maker should aim at obtaining transparency, and plenty of detail in the shadows, simultaneously with fully developed high lights.

A dense negative should be exposed near to the source of light. A thin negative far away. A hard negative, viz., one with harsh and sudden contrasts, needs long exposure near to the light to soften the result. The effect of light varies inversely, as the square of the distance from its source, for instance, if the exposure at a distance of one foot should be, say six seconds, the exposure at two feet would be two squared (= 4) multiplied by six seconds = 24 seconds. It has, however, been proved that when exposing negatives, the farther they are from the light, the longer in proportion will the rays take to penetrate the dense portions, thus we are able to increase contrasts by printing at a distance, and decrease them by nearness.

I have purposely avoided giving a developing formula, as I always advise the use of one of those enclosed with the particular brand of plate chosen. Distilled water will certainly be mentioned, and should be used. Do not be afraid of it, I invariably add more water than the quantity recommended, by so doing, greater control of operations is secured.

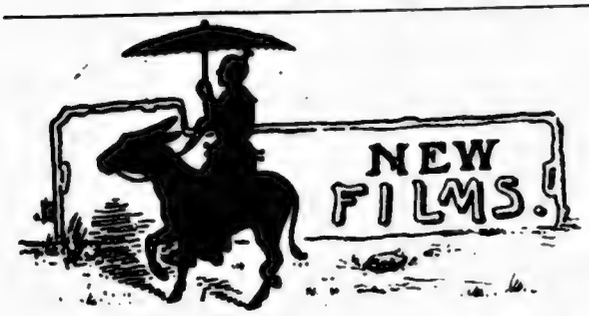
Cleanliness is the great essential in all photographic work. Hypo soda is a good friend but a bad enemy. The hands should be washed directly after touching it. A special place should be set apart, for the hypo dish. Lantern slides will generally bear clearing to a greater or lesser extent, and Farmer's Reducer is the best for the purpose as long as it is well diluted. A few drops of a ten per cent. solution of ferricyanide of potassium, in two or three ounces of weak hypo, should be made up. The plate should be closely watched, and clean water kept handy for a quick immersion to stop reduction. Veiled skies may be cleared locally by gently painting this solution on the wet plate with a camel hair brush. I have refrained from describing in detail the mechanical work, which should be read up in some good text book. I should not presume to tell a lanternist how to bind a slide, and where to put the spots, etc. I would, however, again lay stress on the need for the exercise of the greatest possible care in the minutest detail, both in clean working and the preservation of the film from dust.

"LOOK AHEAD AND BE READY."

Dear Sir,—We call your attention to an article in *Focus*, January 4th, under the above heading, written by an operator condemning the use of tin boxes for limes, and stating that he bought a box (of one dozen tins) and placed them in a warm cupboard near the fireplace, and in three weeks they were "all reduced to pieces." This certainly was his own fault in not carefully sealing the tin each time it was opened. We do not keep cylinders near a fireplace, and could forward for your inspection a tin we have had over five years and another three years, which have been opened several times to see if any shakes or expansion has taken place; these are as sound as when made: a dry *medium* temperature is far better than an extremely dry one. We have had one of our tins placed in an open shed all last winter, where it has been exposed to damp and intense cold; we could also send these limes for inspection. Properly used, we find nothing more simple or economical than the lever lid tin. Glass tubes and bulbs we consider an expensive and misleading fad, and have known the limes to crack inside the tube or bulb by being held too long in the warm hand alone, also by being placed in the waistcoat pocket, and the heat of the body has caused the expansion of the lime and cracked it. Furthermore, we have known the tubes in which the Army signaling pencils are placed, cause the pencils to crack in the same way. It is a well-known fact to all lime burners that half-an-hour's sunshine falling upon the lime will cause more cracking and crumbling of the lumps than being exposed to five or six hours' damp atmosphere. In all our utensils for holding lime, whenever any is taken out we fill up the air space that is left time after time. The same system should be applied to a tin of cylinders whenever one is taken out, the place should be filled up with thoroughly dry tissue paper, until the tin is empty. Lanternists and dealers complain of the high price of cylinders, but to advocate the general use of glass tubes or bulbs would raise them another fifty per cent. at least. No matter how expensive the method of packing or securing them against the atmosphere, no lime cylinder can be absolutely guaranteed that was ever made, for if the raw material is faulty at the commencement it remains so to the end.—Yours, etc., T. S. WHITEHALL & CO.

FILM MAKER WANTED.

Dear Sir,—Noticing enquiry in your journal for price for taking a film or films of family subjects, we have pleasure in enclosing our list for this class of work. At the same time it is almost impossible to make fixed charges, and if your correspondent will kindly write us his exact requirements, probable length of film, where he wishes same taken, etc., we shall be happy to send him a special quotation.—Yours, etc., CRICKS & SHARP, 7, Great Queen Street, High Holborn.



An old proverb states that "familiarity breeds contempt," and whilst this may be perfectly true in the majority of cases, we are bound to say that when applied to the inspection and criticism of Cinematograph Films, it has not been our experience. To very few people is given an opportunity of seeing such numbers of films, bearing upon various races of men all over the world, to say nothing of the stage films. Far from getting tired of seeing films projected, we find our interest becoming keener and keener, and that directly we hear of a subject being put on the market, are all anxiety to see it, and look forward with interest to the day fixed for its exhibition.

Some would think after seeing hundreds of comic subjects, human appetite for humour would become exhausted, and that this class of film would become a source of boredom. Yet it is a long time since we laughed so heartily as the other day, when viewing a film being projected at the offices of Gaumont & Co., in Cecil Court. It was called "The Stolen Pig," and we candidly confess it to be one of the finest comics we have ever seen.

The picture opens showing the exterior of a butcher's shop. An old woman of suspicious appearance walks up to the front, and seeing no one about, slips a sack which she is carrying over the carcase of a pig, and unhooking it from the rail, staggers off. The butcher now makes his appearance, and immediately notices the absence of his stock-in-trade. He calls his son, a little boy, and this young man soon spots the thief some way down the road; father and son follow her on tiptoe. The scene now changes to a shady lane, and we see the old woman still carrying the pig. She thinks she has escaped observation, and, placing her booty in the hedge, seats herself beside it, and is soon asleep. The sly owner and the boy are not far behind, and they have an idea of recovering the pig and punishing the thief at the same time. In a moment the butcher has changed the pig in the sack for the boy, giving him the trotters, which stick out at the top just as before, and by the time the old woman wakes he is out of sight. She jumps up and tries to pick up the pig, but finds it so heavy that she drops it, and the next time she stoops towards it, it gives a series of jumps and kicks. The woman starts back, and the pig, rising on its hind legs, chases her in leaps and bounds, waving the trotters in the air, till the old woman, more frightened every minute, and unmindful of the way, tumbles backwards into a pond. The butcher now comes forward, and, having released the boy from the sack, the two enjoy the joke.

Another film these gentlemen are selling is also very good, the title being "The Lost Child." This is a film of the "Chase" class, but the situations are extremely humorous, and at certain times exciting. The quality of the film is very good, each scene is snappy, and full of life, and causes a continuous roar of laughter.

Messrs. Hepworth & Co. are again to be congratulated upon the ideas which occur to them, and which they so successfully reproduce by means of the camera. It must be hard work to think out new plots and discover fresh mines of humour. We were delighted with three comics shewn at their offices, the first being entitled "Bathers will be Prosecuted." This is an original and humorous subject in which Messrs. Hepworth & Co. have worked the reversing trick with very good effect, and with which device Messrs. Hepworth & Co. are *facile princeps*. It has a bewildering effect to see a fox terrier come tail first out of a river, alight on the bank, and rush backwards into obscurity, whilst all one's preconceived ideas of the majesty of the law are completely upset when a policeman in full uniform also comes feet first out of the water, arrests two bathers who are trespassing, and runs them off to the lock-up.

Another film from the same firm, entitled "The Other Side of the Hedge," depicts a very artful stratagem of a young man and woman, who take advantage of their chaperon having forty winks. In order to allay any suspicion she may have as to what they are doing the other side of the hedge, they place the lady's hat on the top of her umbrella, and the gentleman's hat on his stick, some feet apart, the impression to the chaperon being that they are sitting some distance away from each other. The second portion shows it possible for a lady and gentleman to have their hats apart whilst they may be considerably nearer than one would suspect from their headgear.

The film of this firm we like best is called "A Trip to Paris"; a most instructive subject, as it practically conveys the spectator from

Victoria to Dover, on to the boat and across the Channel, right into Paris, and gives several views of the most interesting parts of that city. Whilst it is instructive, it is also amusing, as Messrs. Hepworth secured a typical English tourist, with the usual loud check suit and very pronounced English ways, to accompany him on this trip, and the situations this unfortunate tourist gets into, first whilst securing his ticket in the midst of a crowd; next when he experiences all the discomforts of a rough crossing of the Channel; and finally trying to make a gendarme understand where he wants to go; considerably enhance the interest in the film.

THE WARWICK TRADING CO., LTD., have succeeded in putting two startling novelties on the market. The one that appeals to us most is called "The Traction Engine with Elephant's Feet." This is a traction engine invented by Mr. B. J. Diplock, in which the War Office authorities at the present time are largely interesting themselves. It is difficult to explain the principle on which this engine progresses. If we say that, to our mind, it is a sort of cross-breed between a traction engine and an elephant, we think we shall have conveyed to our reader's mind about the same impression we had when we left the offices of the Warwick Trading Co. We little thought that we should have lived to see the day when a traction engine would walk up a staircase, but that day has dawned, and we must confess we were puzzled. It does do it, but how on earth it does it we do not know, neither can we explain.

HAVING been fairly mystified with the traction engine, the operator at Warwick Court proceeded to shew us the picture of the biggest schoolboy in the world. We must again leave our readers to imagine what a schoolboy, only fourteen years of age, looks like, when he stands 5 feet 10½ inches in his socks, and weighs 23 stone. A view of this young gentleman, attended by companions of his own age, going to the village school, playing football and cricket, and being conducted out of school by the master, who barely comes up to the boy's shoulder, is a most novel and attractive subject.

THE last film we saw at the Warwick Trading Co.'s offices was a picture of Zouaves scaling a wall about 25 feet in height. This is practically a reproduction of the celebrated troupe which created such a furore at the London music halls about a year back. The photographic quality of the film, combined with the steadiness, is so good, that to all intents and purposes it was hard to realise we were not looking at the actual performance of the men, instead of it being a reproduction by the cinematograph.

TAKING the new subjects produced last month as a whole, we must say that they are, both from point of interest and photographic quality, very much in advance of anything we have had the pleasure of seeing during the last six or eight months, and now that the weather is becoming more favourable, we have no doubt that we shall see still further improvement in the films that are being manufactured.

NOTICES.

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Chats with Trade Leaders.

No. 3.—Mr. A. C. BROMHEAD

(Of GAUMONT & CO.)

WHILST chatting with leaders of the trade, and comparing their attitudes with those of managers in other businesses, I have been struck with a certain conservatism that pertains to this particular industry. There has been a feeling that they wished to keep something back—a mysterious element which the reader shoul[illegible] With the development and growth of the industry, however, this feeling [illegible]m and educate the general pu[illegible]ry particular connected v[illegible]ufacture of the goods, the [illegible]perating them, and a wis[illegible] to give information t[illegible]ase their popularity and [illegible]When I called on Mr. B[illegible]ther day, at Cecil Cou[illegible]rably impressed [illegible]ess to explain and mak[illegible] point in our conversati[illegible]ay he refrained fr[illegible] an air of mystery, [illegible] to give definite f[illegible] particulars, shewed he[illegible] opportunity to take ou[illegible] confidence.

"I s[illegible]tart at the beginning, [illegible]romhead, when I s[illegible]few notes of the histor[illegible]uld interest our readers[illegible]he business was establi[illegible]y Mr. Leon Gaumont, w[illegible]acturer and dealer in [illegible] materials, and did a larg[illegible] first practical patent, which was then regarded as a mere toy. After three or four years the invention seemed to have a commercial value, and seeing the scope there would be for enterprise they quickly increased their interest in the living picture industry, and made vast strides, until now they employ 170 men at their factory at Belleville, Paris. Here every possible mechanical contrivance for the perfect manufacture and correct fitting of the various parts of outfits is laid down. No expense is spared to have things right, and any suggestions we make for the improvement of instruments or to fit them for the English market are readily carried out. In 1897 I already had some little knowledge of photography, and, seeing the possibilities over here, suggested to Mr. Gaumont the establishment of an English house. This was done, and I was made manager, which position I have held ever since. I soon found the projectors used on the Continent were of huge proportions, and that a neater and more compact contrivance was required for the English market. Although this necessitated money being spent in new tools, it was quickly done, and I had the satisfaction of knowing that the requirements of the English operator were met. It might interest you to know that we are at present constructing an entirely new type

of machine, which will probably not only be well received by our English friends, but may be adopted by those on the Continent."

"Do you not find the fact of being a French house prejudices you in the eyes of the Englishman?" we asked.

"That is a little misunderstanding I should like to clear up," said he. "Certainly, our firm originated in France, but we pride ourselves that, although we do not manufacture machines in Great Britain, our Company here is English, and entirely separate from the French house. We send considerably more films to Paris than they send us, especially comic and story subjects. At Champion Hill we have fourteen acres of ground with a well-appointed theatre and scenery, and a permanent stage manager, and turn out an average of eighty thousand feet of film weekly. As you know from our Elge list we supply fifteen to twenty new subjects every month, so you see we give the labour market here more than an equal share."

"For such a tremendous output as this, do not you find great difficulty in obtaining new subjects?" we asked.

"That is full of them," was the reply, pointing to a large safe. "It is not the difficulty of obtaining subjects, but the trouble of making a selection which will be workable and worth the expense. Little does the originator of an idea know the amount of time and thought needed to perfect his immature suggestions. Take the case of 'The Lifeboat,' which was one of our most successful and realistic subjects. Time after time we tried to be on the spot synchronously with a wreck. Views were taken at several seaside towns —Gravesend figures prominently—and the Worthing Lifeboat crew, which we specially engaged, made many perilous launches before we could obtain the desired effect. Many feet of film were used and much money was spent, but finally we were able to present a subject that has been cheered again and again at hundreds of shows. The theatrical agencies know our man well, for he is ever endeavouring to engage special people to act particular characters which may be required, and several ludicrous incidents have happened whilst they have been engaged in their work. You will remember we recently had two operators arrested in a South London Street, and were fined a nominal penalty for obstructing the thoroughfare. This was for a film that I am shortly producing. In

our 'Run Away Match' film, with natural surroundings at Denmark Hill, we had better luck, for a police inspector witnessed and thoroughly enjoyed the fun."

"Do you use the camera yourself, Mr. Bromhead?"

"Well, I love the work, but with increasing business find little opportunity for indulging. There is an air of excitement and bustle which few professions possess, and one finds oneself in curious situations. I remember when Kitchener returned to Southampton from South Africa I was determined to possess a good series of views, but it seemed as though the fates were against me, for on arriving at the quay there was a huge crowd, and I was, unfortunately, late. All the best positions had been secured by hand camera and living picture men, and I desponded of getting anywhere near the site where the gangway was to be placed, consequently I had to go by the back of the crowd right to the side of the quay, and there forced my way up to the Guard of Honour, where luckily I got some boxes and set my apparatus right over the heads of those in front. I had a stroke of luck, and instead of the early birds catching the worm, had the satisfaction of seeing the gangway lowered right in front of where I had taken my stand, and I secured one of the best views as Lord Kitchener walked right up and stood unknowingly in the face of my camera.

SKELETON OF NEW PARIS BUILDING.

"On another occasion, when the Boer leaders arrived on the SS. *Saxon*, I and another operator tried hard to get a picture, but the *Saxon* was twenty or twenty-five feet above the quay level, and to take them coming down the ladder would certainly not have made a successful picture. Having previously heard that Mr. Chamberlain was on the *Nigeria* at another wharf, I thought I would slip off quietly and get an advantage over my competitor, who also saw the impossibilities of the *Saxon's* picture. In order that he might not play the same game as myself I bolted round the back of a shed and doubled round along the wharf to the *Nigeria*, where, much to my surprise, I came face to face with my competitor, who had been equally sly by waiting for my disappearance. Our cross purposes of putting one another off the scent had the same ending. However, I told him that two sets of films of the same picture would be unwise, and we agreed to take different sides of the wharf, and both obtained excellent views of Lord Roberts, Kitchener, and the Boer leaders returning from their visit to Mr. Chamberlain. The Naval Review at Spithead was held the same day, and directly I had taken the Boers I

wished my rival good day and boarded a tug as per previous arrangement, and went down to lunch while she cleared from the wharf. Coming on deck, who should be the first person to greet me but my comrade of the morning, and it seemed fated that we should stick together, which we did until the return home. I could continue to relate curious hints and facts, but presume you want to hear more about business."

"Our magazine, although recognised by the trade as being useful for business purposes, is also read by a large *clientele* of the general public, and incidents such as you have related give them an acquaintance with the inside of the business," we replied. "But we should be glad to hear about the future."

"That I consider perfectly secure," said Mr. Bromhead. "So sure as the general public want to be interested and amused, so sure will animated pictures keep to the front. We are convinced we have only touched the fringe of the industry, and recognise its enormous possibilities. As you will see, we are constructing an enormous crystal palace in Paris, and spending thousands of pounds in solid cash for the purpose of perfecting the chronophone, which beyond question has come to stay. We had a successful show at the London Hippodrome, followed by a visit to other places of entertainment in provincial towns; everywhere the interest shown evinced that more was wanted. We are busy on new subjects, and are still further perfecting the apparatus, and this huge building has been erected for the purpose of giving effect to new contrivances, which were necessary for greater improvements. Then our business on the Continent is increasing marvellously, and we have sold machines to the Mikado of Japan, the Ameer of Afghanistan, the Sultans of Morocco and Turkey, the King of Spain, the Shah of Persia, and many other important personages."

"Did you not obtain a gold medal at St. Louis?"

"We were placed *hors de combat* in that matter, for Mr. Gaumont was not allowed to compete as he was appointed one of the jury to give the decisions; but the fact that Mr. Reardon, who was the special commissioner sent all over the world to select the most suitable machine, gave his verdict in favour of Gaumont, shows that our firm were recognised as leaders in the trade."

"Have you had any trouble with the unfair duplication of your films?" we enquired.

"I am glad to say that, as far as England is concerned, we have been fairly free from this daylight robbery, and should we discover any such proceeding shall go strongly for the persons concerned. America and the Continent have shown us they are not so chary of wrong doing, and directly we find a case we immediately take proceedings, as we use every precaution to register a new subject. We, of course, soon know of these dupes, for there is hardly a show running in any part of the world that does not possess a large percentage of our films. As far as possible we keep aloof from the law, and strike out on our own lines of working, striving not to clash with our competitors. In India, Australia, and the Colonies we find there is a tremendous business for English films."

"And now as to the prices of machines and films," we asked. "Did you see the letter in the last number of our magazine, suggesting that it was unfair to charge the same price for films that had cost a very big sum to produce, as that charged for an every-day subject?"

"Yes, I saw the letter, but am afraid the writer did not realise the complications that would arise if films were sold at varying prices. We were the first to adopt the universal price of 6d. per foot, and our competitors quickly fell into line, and although first one and then another attempted a new move, they soon resolved to maintain as a standard the selling of fat and lean together. See how easy it is for the showman, who, knowing the length of film required, or the length that he is showing, can practically do his book-keeping in his head. I am convinced that 6d. a foot is a fair all-round price. With regard to the price of machines, we chiefly cater for the high-class exhibitor, but have produced lanterns for drawing-room exhibits at £8, and have our pocket chrono at £7, a marvel of mechanical ingenuity, which has a clockwork motor, and takes or projects pictures half gauge size, as required. I agree with you that there is a demand for a cheap but perfect machine, but I hardly think the time ripe for it, owing to the price of the films and the trouble of getting a suitable illuminant, but, as your journal predicts, the inventor is busy overcoming both these difficulties, and it may come sooner than you or I expect."

By the way, over and above the many films catalogued in our monthly publication—"The Elge List"—we hold the exclusive selling agency for the American, British and German Biograph Company's subjects, also for the films produced by the Clarendon Company, known as Clarendon films, and likewise for more than one Continental manufactory beside our own Paris House.

"Have you a man at the front taking views of the war?"

"No, and judging by the results or rather the non-results obtained by others, perhaps it is just as well we have saved the expense. We have sold outfits to the Japanese authorities, and have seen some of their productions, which, although containing remarkable scenes, were not fit for public display, owing to the need of further education in the use of the instrument. With more practice, we shall doubtless see better results. Here is a view from the seat of war, which appeared in the *Illustrated London News*, and it shows one of our outfits being operated by a Japanese, so that you see this verifies my statement."

During the short hour we spent with Mr. Bromhead, the telephone, the cards of callers, his assistant managers, and numerous interruptions, showed that his time was fully taken up in the rush of a successful business, and fearing to intrude still further on his good nature, we took the opportunity, when the typewriter brought in the day's letters for signature, of thanking him for the interesting chat, and of withdrawing.

THE SUN AND MAGNETIC STORMS.

MR. WALTER MAUNDER, of Greenwich Observatory, has for some time conducted a series of careful observations on the suspected relations between sun spots and the terrestrial disturbances known as "magnetic storms," the results of which, so far as they have yet been ascertained, he laid before the British Astronomical Association on the 1st December.

It will be remembered that a magnetic storm shows itself by a sudden and spasmodic disturbance of the magnetic needles, causing them to oscillate violently, and no longer to point North and South, as they do under normal conditions. The disturbances continue sometimes for several hours before a condition of rest is reached, and they are not unfrequently accompanied by exceptionally brilliant displays of the Aurora Borealis in the Northern regions, and probably of the corresponding phenomenon in the Antarctic circle. Unlike other storms, due to atmospheric influences, the magnetic storm is found to affect the entire globe at one and the same time, being experienced in countries as remote as the antipodes almost at the same moment.

It seems to be generally acknowledged that the sun spots, which recur periodically about every eleven years, are due to some disturbances of a cyclonic nature in the intensely luminous envelope of the Sun, and their influence on weather conditions on our planet has been the subject of much controversy, and has evoked wide differences of opinion among astronomers and men of science for many years past, the late Richard A. Proctor having to the end of his life been extremely sceptical as to the existence of any well-defined influence of the kind, while Sir Norman Lockyer, with many other physicists, has recognised them very distinctly. The presence or absence of these spots, however, does not always coincide with the occurrence or otherwise of magnetic storms, and some twelve years since, Lord Kelvin pointed out that as sun spots gradually increase for several years to a maximum, and then almost as gradually decrease until they reach a minimum or disappear altogether, the magnetic storms, if directly due to them, should exhibit a similar increase and decline. Though this is not found to be the case, Mr. Maunder has now recognised the recurrence of these storms, not gradually, but suddenly, at intervals of about 27 days and eight hours, or at almost exact multiples of that period. But this corresponds with the period of the Sun's observed rotation on his axis, or, in ordinary language, the length of his day, so that the spot on the Sun's surface which faced the earth at any particular moment, would do so again 27¼ days later.

Mr. Maunder's conclusion is that from a certain part of the solar surface when the spot disturbances are active, as at present, there is projected a stream of finely divided or nebulous matter, as from a jet of water or a geyser, which in its rush through space encounters our planet as it passes us, and produces the magnetic effects which we recognise as "storms," and which are sometimes sufficiently intense to disturb, not the delicately poised magnetic needle only, but even our electric currents, used for the purposes of telegraph, lighting, and motive power.

The nature of the substance thus emitted remains yet to be ascertained, and its effects to be further verified. Whether it may be some substance resembling radium, whose extraordinary and apparently boundless stores of energy have recently excited so much attention, will no doubt be the subject of much speculation and careful experiment and observation, and will afford perhaps a new and unexpected confirmation of the familiar words that "there are more things between heaven and earth than are dreamt of in our philosophy."

According to Mr. Maunder's observations, a point on the Sun's surface corresponding to the 222nd degree of his longtitude, appears to be the centre from which these magnetic influences chiefly proceed. Should this be confirmed by further investigation, it would suggest that the Sun must have a permanent structure approaching solidity, otherwise the spot in question could scarcely maintain its position with any certainty during successive periods of rotation.

An interesting and important question has thus been opened, which may lead to much light being thrown on solar conditions and influences in the near future.

Queries.

Readers are requested to write each question as concisely as possible on one side of a separate sheet. Name and address to be given for reference. We are not responsible for the opinion expressed. Readers are invited to reply to Queries, and should state number and title of same.

15 **Binding Strips Springing Off.**—I have experienced considerable annoyance owing to the binding of my slides constantly coming away from the glass. Can any reader say how this may be prevented? A few hints from practical workers will be welcome.—AMATEUR SLIDE MAKER.

16 **Various Methods of Diagram Slide Making.**—I saw in one of the photographic journals, some time ago, formula for making ink suitable for diagram drawing on glass, etc., but have mislaid the copy. I shall be glad if anyone can tell me exactly how to mix, and what to use, for this purpose.—SKETCH.

17 **Aphengescope.**—I believe this is the name given to an opaque lantern apparatus. Is this a commercial apparatus? If so, where can it be purchased? Can living objects be exhibited by its use?—SHOWMAN.

ANSWERS.

13 **Cutting and Cleaning Negatives for Lantern Slides.**—One inch cut off the quarter negative will leave a square of 3¼ by 3¼, the proper size. A gauge should be made on a piece of board, consisting of a strip of wood quarter inch thick, and 4 inches by 2 inches, forming a stop. At a proper distance from this fix a bridge made of a wooden straight edge, with its two ends resting upon quarter inch supports. If the old negatives are slipped under this bridge, film side downwards, and with their edges butting against the stop, a glass cutter may be run across. Messrs. Butcher & Sons, of Farringdon Avenue, list a cutting gauge and cutter for the above purpose. The method of stripping the film from the cut glasses must depend somewhat upon the developer that was used. Pyro tans the gelatine and simplifies the removal. A solution of sodium bicarbonate is made, and the dry negatives soaked in it for a quarter of an hour. Another dish is filled with a dilute solution of any acid, and the wet negatives immersed one at a time. It will be seen that globules of carbonic acid gas are forming under the film, and are raising it from the glass; it may then be rolled off without trouble. When modern developers have been employed, the gelatine remains permeable to the gas, which escapes without lifting the film, and in that case the bicarbonate bath should be preceded by one of chrome alum or of formaline, which will harden the film. The gelatine may, of course, be dissolved off with hot water; but a thorough scrubbing is needed to get rid of the last traces.—E. R. S.

13 **Slide Makers Wanted.**—Try either of the following, any of which may be relied upon for good work:—Wilkinson & Co., 15, Holmside, Sunderland; James Bamford, Holmfirth, Yorks; and John Doue & Co., Photographic Works, New Barnet, N.—E. T. W.

11 **Film Maker Wanted.**—The Warwick Trading Company, Warwick Court, High Holborn; R. W. Paul, 68, High Holborn; L. Gaumont & Co., Cecil Court, Charing Cross Road; the "Walturdaw" Company, Ltd., 3, Dean Street, High Holborn. All these keep expert operators, ready to be sent at a moment's notice for private work. Prices cannot be given without knowing work involved; but an inquiry to the above, supplying details, will bring the information.—R. S.

12 **Paints for Slides.**—These are sold by most of the dealers in lantern apparatus. To mention only two names—W. Tylar, 41, High Street, Aston, Birmingham, and W. Butcher and Sons, Farringdon Avenue, London. I do not think there is a book on the subject published.—SAUNDERS.

14 **Focussing Lantern Lens.**—It is somewhat difficult to follow Omega in the above query, but I think the following, which I find in a recent issue of *Camera Notes*, will help him:—

Every user of a lantern should always know the focus of the lens he is using; he is then in a position to determine whether or no he can exhibit in a room so disposed that only a certain distance between lens and screen is available, and that he will be able by working at a certain distance to get a certain sized picture on the screen. Thus, should the lens be too short in focus to suit the distance he must show from, the picture will overlap the screen, and too little of it will be seen on the sheet. On the other hand, should the lens be too long in focus, the image will be too small, and look very diminutive on the sheet, quite out of proportion in fact. When showing lantern pictures, the size of the image on the sheet or screen should be such that a margin of about six inches on each side is allowed.

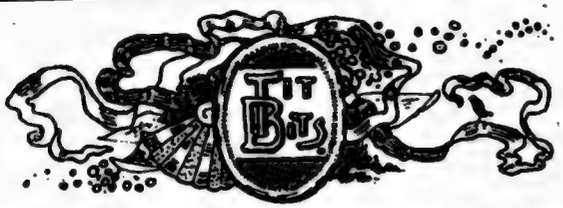
To find the focus of a lantern lens use a slide having a mark three inches diameter, circular in form, and focus this sharp on the screen from a convenient but known distance, and measure the diameter of the illuminated circle or disc on the screen. Now multiply the distance by the opening in the lantern slide (three inches), and divide this by the diameter of the illuminated portion of the sheet. The result gives the focus of the lens being used. Example:—The exact distance from the sheet to lens is twelve feet, and the size of the disc is nine feet, then

$$12 \times 3 = 36 \div 9 = \text{four inches.}$$

and this is the focus of the lens. Bearing this rule in mind one can easily at any time find out what lens will best suit any place in which he wishes to use the lantern. For instance, the above lens—four-inch focus—would not do for a twelve-foot picture at forty feet away. What would then be required? Simply this:—

$$40 \times 3 = 120 \div 12 = 10.$$

LANTERNIST.



Mr. T. R. Croger recently lectured on "Some Historic Buildings in the City of London" to the members of the Society of Architects. The slides were of great historical interest.

New Secretary at the Royal.—From the 290 applicants for the secretaryship of the Royal Photographic Society, Mr. McIntosh has been appointed to the office.

At Lynn, Norfolk, the optical lantern is used at the P.S.A. meetings, and also at evening special services. Subjects recently dealt with: "The Bells of Christmas Eve" and "Christmas in Paradise."

Northampton is very enthusiastic about the animated picture shows at the Corn Exchange lately. The films were very up-to-date, and included the church parade of the Coldstream Guards at Birmingham, and other military spectacles.

The first week of the New Year at Aberdeen was ushered in by a royal cinematograph holiday carnival given by Walter & Co. huge audiences being present at both afternoon and evening shows.

The Chief of the London Fire Brigade has obtained a magic lantern to amuse the children in the brigade during the winter season. The lantern, in charge of a competent operator, is being sent to the outlying stations where there is a sufficient number of children to make an audience.

The Empire Bioscope Company, Ltd., has been registered with a capital of £1,000, to carry on the business of public entertainers; to manufacture and deal in photographic apparatus, lanterns, lamps, films, cameras, etc. Registered office: Cecil Chambers, 86, Strand, W.C.

The Little Gutter Merchants of Newcastle, numbering 300, were entertained on January 4th to a supper, followed by a lantern exhibition. Their manifest interest supplied a ready proof of the never-waning enjoyment children derive from the magic lantern.

Prince Edward, Prince Albert, and Princess May of Wales, attended a lantern lecture by Colonel A. Weston Jarvis, on the South African War, at Hillington Hall, Sandringham, the residence of Sir William Ffolkes. The Princes expressed their thanks to Colonel Jarvis at the close.

The Council pays for Gas and Opaque Blinds.—Stroud Green Town Council have agreed to pay for the oxygen used in connection with the lantern shows given at the school by the help of the lantern presented by the teachers. They also supplied blinds, so that the lantern might be used during school hours.

£32,000 Damages.—Dr. Doyen, the famous French cancer specialist, is bringing an action for £32,000 damages against four Paris firms, which, for purely commercial purposes, have been exploiting cinematograph films recording operations performed by the eminent surgeon. Judgment has been reserved.

Princess Louise, Duchess of Argyle, and the Duke of Argyle were present at Mr. T. R. Ablett's lecture on the work of the Royal Drawing Society. Mr. Lionel Cust was in the chair, and announced that the Duchess of Portland and Lord Windsor had joined the Society.

No time has been lost by Mr. Frederic Villiers, the celebrated war artist, who has just returned from the front. He gave a series of lectures on the 25th and 26th at St. James's Hall, in the afternoons and evenings. The subject was the siege and defence of Port Arthur, and was illustrated with slides made from sketches and photographs by himself.

"Nature at Work and Play."—By means of the lantern, Mr. Richard Kearton is exhibiting snap-shot pictures illustrative of the above subject, at Sunderland. His experiences of the many trying situations he has had to endure whilst waiting to secure his unique pictures are very entertaining, and the several imitations of bird calls add to the interest of his lecture.

The World and his Wife photographic competition resulted in half the total number of prizes being carried off by ladies. The first prize of £50 was won by Mr. R. F. Tyler, Surbiton, and the five prizes of £1 each as follows: Miss E. Swinburn, Bexhill-on-Sea: Mr. J. U. Young, Sheffield; Miss Ethel G. Lowe, East Ilsley: Miss J. E. Corrie, Alresford; and Mr. H. Bird, Avonmouth.

At the conclusion of the annual meeting of the Birmingham District Association of the C.T.C., Mr. Hewitt lectured upon cycling experiences among the Norwegian mountains and fjords The lecturer carried his camera and tripod on his bicycle, and obtained some grand views of the picturesque country. The slides were good, and the coloured ones were continually greeted with applause.

Cinematograph Accident.—The general public are beginning to realise that the danger attendant on cinematograph film fires is in most instances limited, and that the burning up of a roll of film need not alarm them to a serious panic. Thus, at the Southport Pier Pavilion, where an incident of this character occurred the other day, the attendants quickly assured the audience that there was no danger, and they retired in an orderly manner.

Pharmaceutical Association.—In the rooms of the Glasgow and West of Scotland Pharmaceutical Association Mr. William Mair, F.C.S., lectured to a large audience on "A Pharmacist's Impressions of the United States." The lecture was illustrated by two hundred lantern slides, including a considerable number specially lent for the occasion by the British Royal Commission to the St. Louis Exposition.

Various Tones for Lantern Slides.—Mr. H. L. Thomson, recently at Darlington, gave a practical demonstration of Edwards' "Kristal" lantern plates, showing how easily various tones from black to red can be produced by simply varying the exposure and development. The exposures were made with magnesium ribbon. Mr. Thomson also toned several bromide prints and lantern slides with the new invention of Messrs. Edmund & Co., to which they have given the name "Cubrome."

Claim for a Bioscope.—At the Greenwich County Court, Walter Marchant, trading at Brattenham Road, Walthamstow, as Charles Ross, sued Matthew Brown, of Knowles Hill Crescent, Lewisham, for the recovery of a bioscope, films, etc., and for damage done to films. Defendant hired the machine and films to tour with, but paid nothing, and refused to return it. He had, however, sent back some films, which were now useless. His Honour gave judgment for plaintiff for £49 10s., to be reduced to £21 if the bioscope and films were returned.

Industrial Lantern Lectures.—Very considerable progress has been made in the arrangements for the delivery of lantern lectures on the progress of British industries, organised by Mr. Ben H. Morgan throughout the British Colonies and foreign markets. The first industry to receive attention under this scheme is that of engineering, in connection with which such eminent authorities as Sir William Preece, Colonel R. E Crompton, Mr. James Swinburne, Professor Ripper, Mr. W. H. Maxwell, and others will explain in detail the advancement that has been made in recent years, and it will be a special feature that each lecture will be graphically illustrated by means of lantern slides of photographs and drawings.

Derby Photographic Society. — At the fourth meeting, Mr. Wm. F. Slater, F.R.P.S., demonstrator for R. and J. Beck, gave a demonstration and lecture on photographic lenses, explaining the methods used for correction, for distortion, chromatic and spherical aberation, astigmatism, &c. He also showed and explained the telephoto lens, and cameras of different varieties for use with the various lenses. The lecture was amply illustrated by lantern slides. At the fifth meeting, Mr. J. Page Croft will give a demonstration on "The Gum Bi-chromate Process of Pictorial Printing," a process now so much in vogue among the advanced section of pictorial photographers.

The International Photographic Exhibition will be held at Earl's Court from March 16th to 30th, 1905. Space and attention is to be devoted to the moving life picture business, including the cinematograph, biograph, bioscope, stereoscope, and ordinary optical lantern. Lantern lectures are being arranged, and amongst those authorities taking part may be mentioned E. Sanger Shepherd, Esq., H. Snowden Ward, Esq., and Duncan Mitchell, Esq. Competitions are also being organised, and the preliminary prospectus is now ready, copies of which may be obtained on application to the Hon. Secretary, Mr. Robert Hilton, Exhibition Offices, 119-125, Finsbury Pavement, London, E.C.

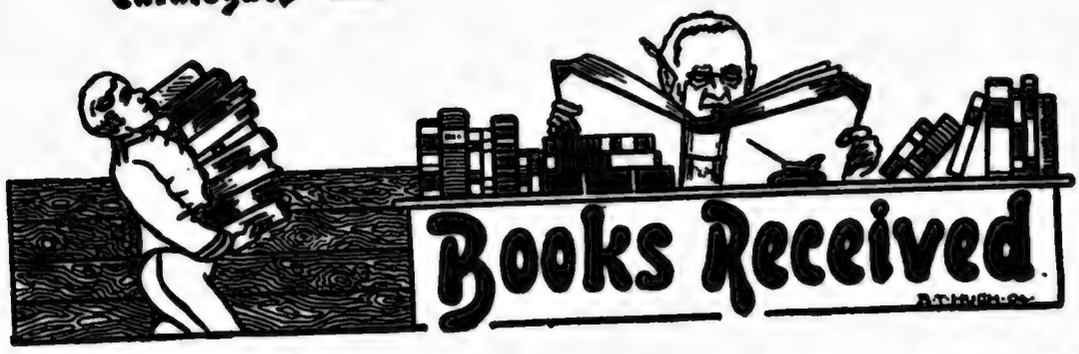
Lantern Slide Making.—There was a good muster at the Sheffield and Hallamshire Photographic Society, to witness a demonstration of "Lantern Slide Making by Contact," at their usual monthly meeting. Mr. F. Mottershaw presided. Mr. G. Tomlinson commenced the proceedings by making a slide from a quarter-plate negative, and he was followed by about a dozen other members, each of whom made a slide by contact from his own negative. The slides were then rapidly dried by the aid of methylated spirits, and then projected for inspection. These were supplemented with a series of excellent slides by Messrs. Bagshaw and Bingham, the lantern being operated by Mr. Mottershaw.

Ladies' Evening.—The ladies' evening at the Camera Club, London, is becoming a popular feature. The first function of the season was held on Thursday, January 12th, when Mr. S. L. Bensusan gave an interesting lecture on "Morocco." One knows not whether to praise most his entertaining description of Moorish life or the splendid lantern slides which accompanied. The photographer's lot in Morocco, despite "the pageantry of a primæval land," and the curious life of Tangier and Fez, is not to be envied. At any moment, it seems, he is liable to have his camera destroyed by a fanatical Moor. The Moorish impression that there is a Satan behind every camera is not at all diminished by the fact that the young Sultan of Morocco has several of these instruments as his playthings.

No Finality reached by the Microscope.—In concluding his lecture at the Kingston Literary Society, Dr. Dallinger, F.R.S., said:—"All these things must impress them with the perfection, the finish, the extreme beauty of minute life and structure. He believed that, far as we had gone in the discovery of the minute beauty of the world, we were happily inconceivably far from its limit. Since he first used the microscope a universe of minute beauty had been revealed by applied mathematics and improved lenses, which was absolutely unimagined 40 years ago. And there was no dream of finality; there was no reason why the next 50 years should not carry the leaders of investigation into a vastness of minute life and beauty that the greatest mind of to-day had no conception of."

England's Home of Mystery, otherwise known as the Egyptian Hall, was closed on the 21st. The popular entertainments so long carried on in Piccadilly under the management of Mr. J. N. Maskelyne, are to be continued at the New St. George's Hall, where an optical room has been built, giving a range of 74 feet. Mr. C. W. Lock, the celebrated lanternist, who has given no less than two thousand shows at the Egyptian Hall, invited us to pay a visit on Thursday, January 19th. The displays emanating from the lantern were of the most interesting nature, and the manner in which the pictures presented themselves upon the screen demonstrated the existence of a masterly and experienced hand at the lantern. We saw projections in natural colours, being produced by the three-colour screen process; dissolving effects of the highest order; panoramas, and a fine selection of animated pictures; but the most interesting projection, at least to us, was the one illustrative of the persistence of vision, called "The Astrometroscope." Only two or three of these instruments are in existence, and the exact nature of their construction is a secret, guarded by the owners. From the projections upon the screen it would be impossible to accurately conjecture the manner in which the effects are obtained; suffice it to say that the instrument fulfils the purpose for which it has been designed. A disc is first shown upon the screen, dotted at regular distances of displacement, with light points, like stars. As soon as the apparatus is set in motion by the lanternist, these light spots begin to move slowly over the surface of the screen; the movement of each spot being equal in every respect. As the speed of the apparatus is increased, the light that hitherto appeared as dots now assumes the likeness of white threads, or twisting silver wires. The uniform movements of each respective spot contributes to a total effect that varies as often as the speed of the apparatus is altered.

Catalogues and



Messrs. Marshall, Brookes and Chalkley, of Harp Alley, Farringdon Street, send us a copy of "**The Magician's Handbook.**" In addition to contributions by many popular entertainers of the past and present centuries, it contains valuable advice to beginners. This volume is not made up of difficult card tricks, only possible of performance after long and tedious practice, but of eminently practical tricks, partly worked out by ingenious apparatus easily made by anyone in the habit of using tools. The illustrations render it easy for the would-be-trickster to seize upon the essential points at a first reading; and we feel sure that cinematograph exhibitors could do far worse than purchase a copy, prepare some of the illusions, and exhibit them as a supplementary item at their animated picture shows. The fact that many of the tricks described have been performed at the Egyptian Hall and other popular places of amusement, should be sufficient guarantee of the high standard of this work.

The Optical Dictionary, by C. Hyatt-Woolf, F.R.P.S., 2nd edition (The Gutenberg Press, Ltd., Fleet Street). This dictionary cannot but be of great value as a reference book for opticians. It contains a complete list of terms used in optical science and literature, arranged in alphabetical order. In order that the work may prove helpful to as wide a circle as possible, terms, not strictly optical, but pertaining to photography and instruments of precision, have been included. Supplementary to the dictionary proper, the volume includes a list of symbols and abbreviations, with their alternatives and meanings employed by various writers. The book is one that no optician, photographer or photo-chemist can afford to be without, especially if writing for the press forms part of his profession.

Animated Photography, the ABC of the cinematograph, by Cecil M. Hepworth. No. 14 of the "Amateur Photographer" Library Series (Hazell, Watson and Viney, Ltd., 1, Creed Lane, E.C.) This, the second edition of the work, has been revised and brought up-to-date by Hector Maclean. It contains 128 pages of matter, with 31 illustrations. A surprisingly large amount of useful matter has been brought within the covers of this book, the value of which is much enhanced by the supplementary contributions of Hector Maclean.

We have received a copy of Darlington's "**London and Environs.**" It is the most comprehensive guide without envolving bulkiness we have seen. There is a good index, and the matter is well arranged. The little volume contains hundreds of line and process illustrations, together with many useful maps.

"**Wrench's Optical Lantern Catalogue,**" which has undergone entire revision, is printed on art paper, and contains 84 pages. The illustrations are from process blocks made from actual photographs of the various apparatus listed. The introductory remarks should be read by every operator of a lantern. Messrs. J. Wrench & Sons, being wholesale only, have arranged to supply copies of their catalogue to dealers, with the latter's name and address printed thereon, providing a certain quantity are ordered at one time.

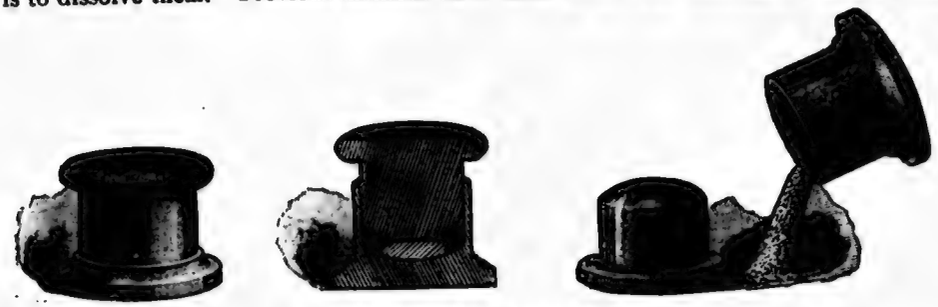
Mr. Andrew Baird, of Lothian Street, Edinburgh, sends his catalogue of select optical lanterns and accessories, for reference. His educational and science lanterns, with erecting prisms, electroscopes, tanks, colour discs, etc, are of a carefully constructed character, and the many good things in his catalogue should make it of interest to all lantern workers.

"**Camera Notes,**" for January, is of the usual high order of this penny monthly. The good quality paper on which its contents are printed, enables the many illustrations to be produced with great clearness. There is no doubt but what this photographic magazine is fast becoming a favourite publication, especially amongst amateur camerists.

R. & J. Beck, Ltd.—No serious photographer or lantern exhibitor should be without a copy of this firm's catalogue, which contains every conceivable requisite, and a full list of the celebrated "Beck Lenses." A comprehensive index enables any accessory to be found at a moment's notice. We understand a copy of this illustrated catalogue will be posted free to all applicants addressing request for same to 68, Cornhill, London.

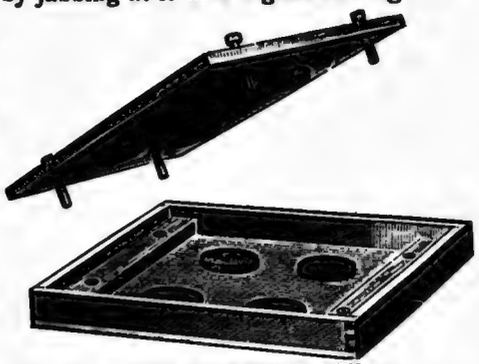
Messrs. Houghtons, Limited.

Never a month passes but what this enterprising firm produces some novelty, which appeals to photographers and lantern men, and this month we again have to notice some capital small goods for reducing labour and helping both amateurs and professionals in their work. Everyone who has used compressed chemicals knows how difficult it is to dissolve them. Previous methods have been untidy and unreliable, and the fragments of the



THE TABLET CRUSHER.

half-crushed tablet are scattered and wasted. One is now enabled to reduce to a fine powder in the space of a few seconds any chemicals in the form of tablets, and being of a given weight, they can be made up into the required solutions with a minimum of trouble. This powder remains in the cup-shaped receptacle, and can be poured into the measuring glass without loss. The strength of the solution is unimpaired, and the fine powder of course dissolves almost instantaneously. Every photographer will remember occasions when he has made exasperating attempts to crush an elusive and partially dissolved tablet by jabbing at it with a glass stirring rod—a proceeding that frequently results in a cracked measure or a broken rod. Another good line is the "Holborn" Negative Posting Box. It is hardly an exaggeration to say that half the negatives sent by post arrive smashed. Packing with corrugated paper is troublesome, and even then there is a risk of breakage unless the parcel is a very bulky one. The box under review is strongly made of American white pine, with tongued corners, and will stand any buffeting in the hands of the postal officials. The lid is screwed down by four round-headed brass screws, which can easily be turned with a sixpenny bit. Inside the box there are eight thick felt circular pads—four glued on to the bottom of the box and four on to the lid, in such a way that when the lid is screwed down the negative is held securely from above and below. The glass does not come in contact with the wood at any point, and when once the lid has been screwed down the box can be thrown about with impunity. Negatives have been posted in these boxes all over the kingdom in order to test their reliability, and in every case have they arrived safely.



NEGATIVE POSTING BOX.

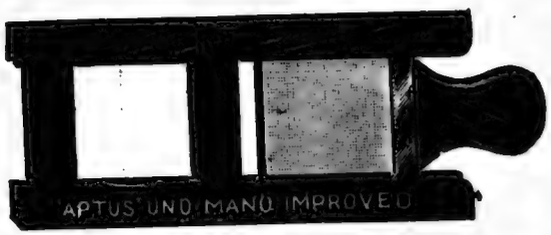
Exquisite Lantern Pictures.

Mr. Graystone Bird, the celebrated lantern slide maker of Bath, sends us a selection of his work. It would be difficult to find words of praise adequate to the merit of these productions. Anyone seeing them will agree that their technical perfection, combined with pictorial composition of the more pleasing character, makes them a source of inspiration. In his natural landscape series we like best "By Still Waters," a perfect

dream of loveliness. We are not surprised to find that this slide has already secured two silver medals. Next, comes another gem, "By the Still Brook;" then "On the Way to the Spring," a happy combination of general and landscape work, which has also been silver medalled; "A Spring Pageant," a group of girls chatting over a rustic orchard wall. Receding from the wild flowers that spring up in the foreground back to the remotest tree-top, there is a most pleasing gradation of tone. "After Many Years," showing a pretty cottage in the country, with a man and woman in the foreground, has also gained a silver medal. "Childhood's Joys," depicting children on the seashore, is winner of silver and bronze medals. This is an excellent example of the pretty effects of wet sand reflections, obtainable when the light is at a certain angle. Mr. Bird has ready new sets of child studies—Snow and Hoar Frost Pictures and Illustrated Hymns. The wording of the latter is printed in a bold but neat type, with appropriate land and sea scapes at the foot. We feel sure that these additions to Mr. Bird's already famous collection of slides will further popularise his beautiful productions.

Messrs. Sharp & Hitchmough, 101 & 103, Dale Street, Liverpool,

Send us a sample of their "Uno Mano" Lantern Slide Carrier, which is made of mahogany, with brass fittings, is of the eclipse type, a second slide made to overlap a first before the latter is withdrawn; thus giving a dissolving effect. We have tested the carrier and find it works admirably. To use it, it is first put in the lantern stage in the usual way. The slide is inserted, and the runner pushed along and withdrawn. The second slide is then put in the carrier and the operation repeated. The action of withdrawing the runner brings out the slide shown with it, and leaves the second one in position. The apparatus has the advantage that all the slides are inserted from one side of the lantern, which is obviously a great convenience to the operator. We anticipate an ever increasing demand for this cheap but efficient carrier.

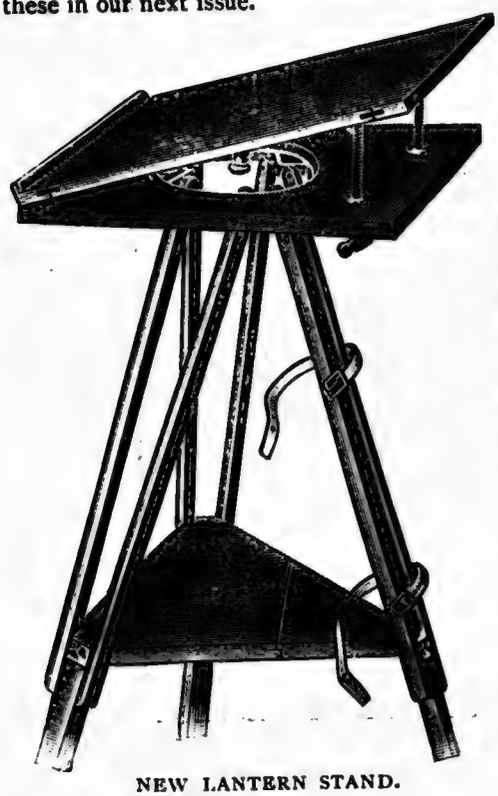


Messrs. K. W. Thomas & Co., of Thornton Heath,

Have forwarded a sample box of their Colour Toning Solutions, comprising red, brown, blue and green. They are not dyes, but chemical preparations which act on the silver deposit in the slide or print. By the use of one or more of the solutions slides or prints may be tastefully tinted. We have received these preparations too near the time of going to press, so that we cannot yet report the results from our practical test.

Messrs. Cadett & Neall, Ashtead, Surrey.

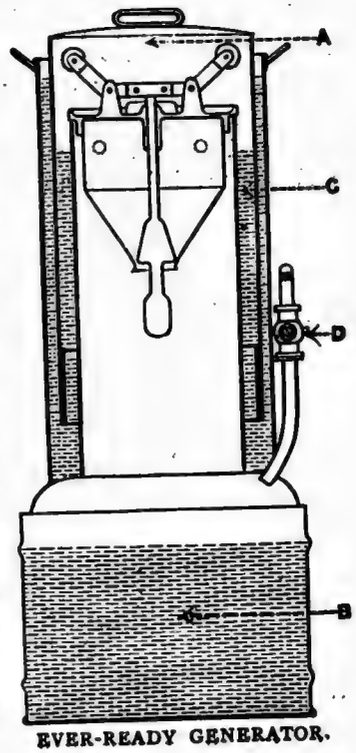
Samples of the Royal Standard Plates reach us just as we are closing for press. We will report fully on these in our next issue.



NEW LANTERN STAND.

W. Butcher & Sons, Farringdon Avenue.

We show two good lines from this enterprising firm. We have long looked for a Lantern Stand that would meet the requirements of the amateur or professional, and in the one under review, every possible contingency is looked to—strength and portability are the chief characteristics, and it also has a perfect turntable, with a tilting table, 20½ by 10½in. Where space is valuable, this Stand should prove a boon. The Ever-ready Generator, from the same firm, was manufactured for those requiring a cheap, but efficient and reliable piece of apparatus, and the fact that all parts are interchangeable, should be in its favour. We have inserted a sectional view, so that the simple working can be seen, but the firm will be only too pleased to demonstrate its simplicity and completeness, if desired.

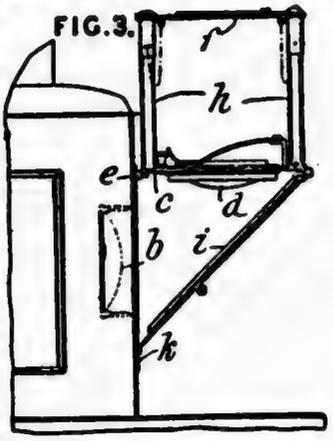


EVER-READY GENERATOR.

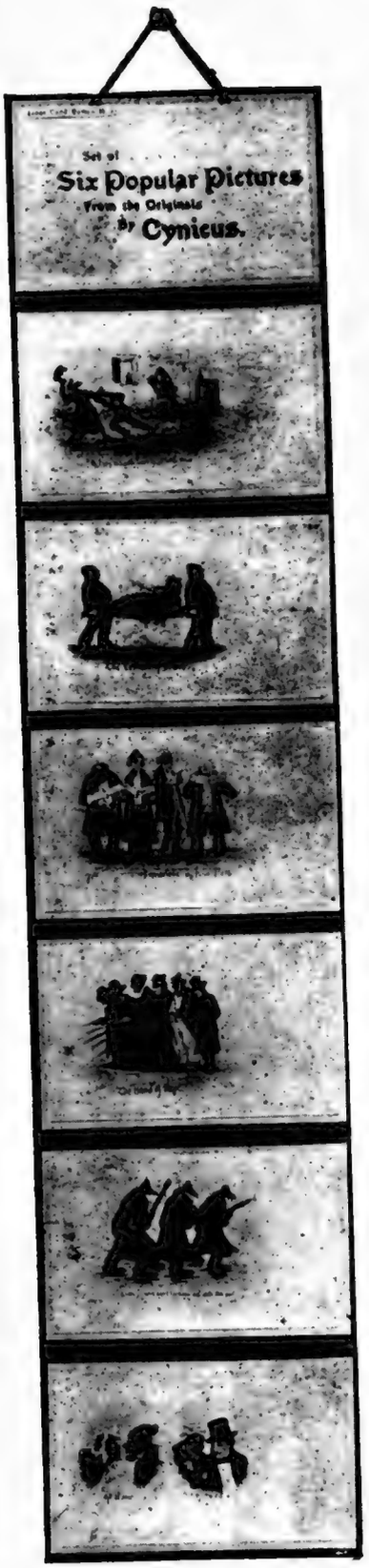
PATENTS.

No. 16,370. Magic Lanterns. WRENCH, A., 50, Gray's Inn Road, London. July 24.

FIG.3.

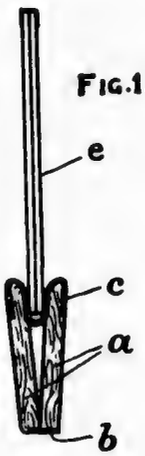


A plate *c*, in which one of the lenses *d* of the condenser is mounted, is hinged at *e* and carries rods *h*, upon which the plate *f*, carrying the projecting lens, is mounted. To the outer end of the plate *c* a mirror *i* is pivoted, which is set at an angle of 45 degrees, resting upon a ledge *k*, when, as shown, the apparatus is required for vertical projection. For ordinary use, the plate *c* is lowered into a vertical position, and the mirror *i* turned outwards into a horizontal position. For the projection of opaque objects the mirror *i* is lowered into a vertical position, and a small table of adjustable height and carrying a mirror is placed in front of the condenser *c*. For use as a limelight box, the hinge pins are removed to detach the fittings.



No. 19,765. Magic Lantern Slides, etc. CRABB, H. A., 11B, Blomfield Street, London. September 14.

FIG.1.



A moistened binding strip is pressed about the edges of a photographic slide *e* for a magic lantern or the like by the device shown, consisting of two jaws *a*, connected by flexible material *b*, and having their free upper ends padded and connected loosely by a piece of velvet or other flexible material *c*, the inner sides of the jaws being recessed to allow the slide to be well pressed.

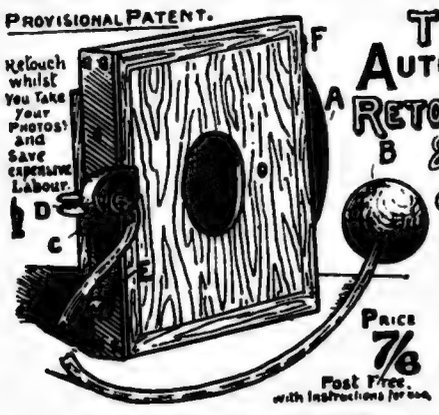
AT CRIPPLEGATE.

The lectures at the Cripplegate Institute this spring should be of great interest. On February 2nd Mr. Frederick Lambert, F.R.G.S., will lecture, with flash-light views, on "Marvels of the Subterranean World," and on March 2nd Mr. E. G. Prasatum Cotelingham will take for his subject "India, the Oriental Wonderland," illustrating his remarks with not fewer than 150 limelight pictures.

BRITISH MUSEUM 28 MH 1905

THE ARRIVAL OF KING LOUIS XIV. AT HIS PALACE AT VERSAILLES.

By the courtesy of Messrs. Pathé Frères we are able to reproduce, as above, the opening scene of their production at Versailles. The film obtained is of great interest from an historical point of view, whilst technically it is all that could be desired.



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Trade Announcements.

WANTED.—Lantern Slide Colourers, who can undertake good work, to communicate with Mr. ROSELLE, Tettenhall, Wolverhampton; will F. Leslie Bishop write.

FINEST Coloured Slides. 60 World's Tour, 20/-; 50 Japan, 17/-; others.—MARRIS, 240, West Derby Road, Liverpool.

KINCOS II. for developing Cinematograph Films, half cost 6/- each, absolutely new. — Address, H.P., BURGOYNE, BURBIDGES & Co., Coleman Street, E.C.

BEARD'S Eclipse Lantern Slide Carrier for Sale. Perfect condition, 6/-; usual price 10/6—H. SMITH, Sandown Terrace, Dews Road, Salisbury.

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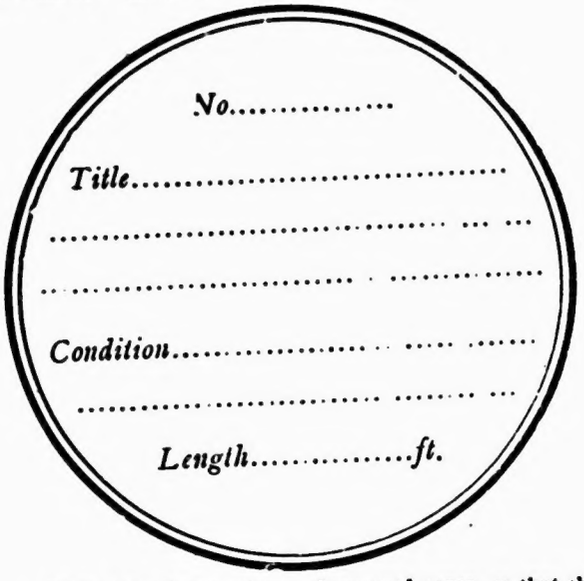

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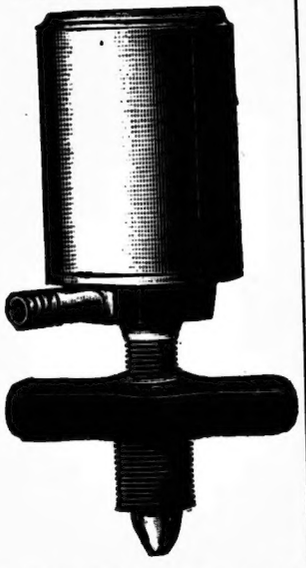

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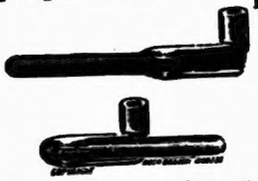

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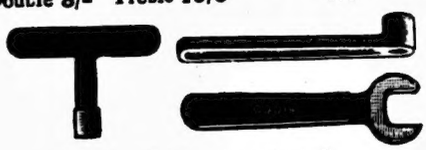

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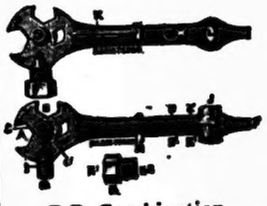

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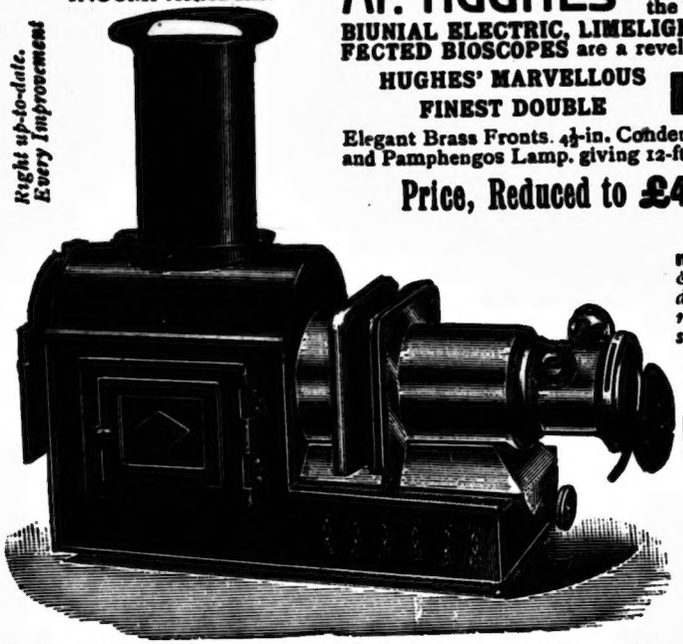

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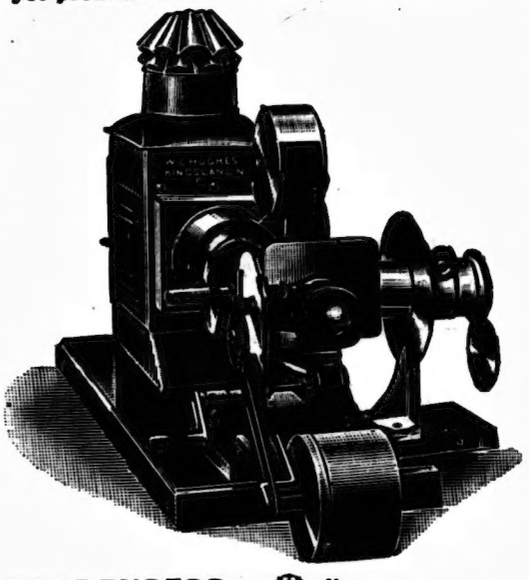

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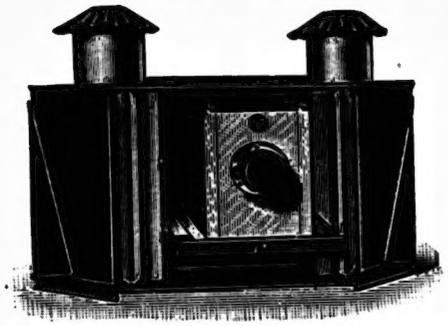

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